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RAIL-ROAD NEWS.

Western Railroads.

The Economist (Cannelton, Ind.) has an excellent article on Western improvements and Railroads. The following table will show that, in the course of three years at farthest, 8,399 miles of railroad will be in operation in the West and some of the new States.

	No. of roads.	Miles in operation.	Miles constr'g.	Cost of constructing.
Texas,	1	—	72	
Tennessee,	5	30	602	$600,000
Kentucky,	7	77	518	1,500,000
Ohio,	30	690	1697	12,768,793
Michigan,	4	432	33	8,460,340
Indiana,	20	279	1142	5,100,000
Illinois,	16	119	1772	2,960,000
Missouri,	2	—	500	——
Iowa,	1	—	180	——
Wisconsin,	1	20	236	4,000,000
	87	1647	6752	$35,389,133

The Southern and Western States will undoubtedly profit more by railroads than the Eastern States, owing to their greater extent of territory, and, as a general thing, the extensive plains through which they pass, which require but few embankments or cuttings. We hope our Southern and Western States are also pushing along plank roads: these roads are essential to our farmers, as auxiliaries to the railroads.

Coal-Burning Locomotives.

Mr. Dimpfel's Anthracite Coal-Burning Locomotive, which had been in active use for one year on the Reading Railroad has been bought by the Utica and Schenectady Railroad, in this State. It is stated that it has fully overcome all obstacles in the way of burning anthracite coal, and has greatly reduced the cost in fuel. This engine we described in our fifth volume, page 405. A year's steady use seems not to have affected the tubes of the boiler. The attention of steamship owners may profitably, we think, be directed to the improvement of Mr. Dimpfel, and that of Mr. Mulholland. If these improvements only reduce the cost of fuel 7 per cent., the saving is very great for our Atlantic steamers—the longer the voyages the greater the advantages of economy in fuel.

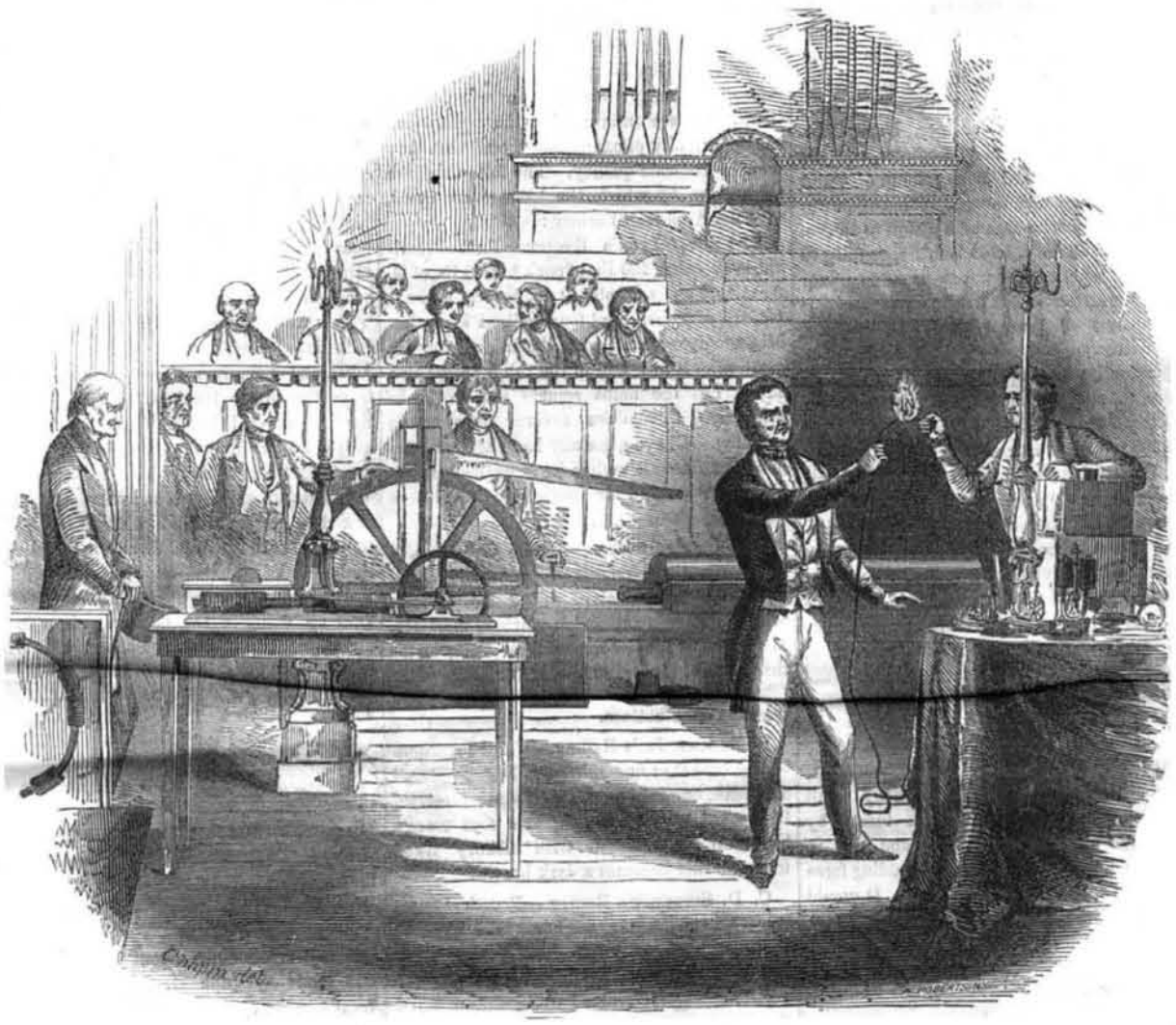
Vermont Central Railroad.

This road is being built from Bennington to Rutland, a distance of 55 miles, the grading and bridging are to be finished by the first of next December. The rails are being laid from Rutland, south, and about 17 miles are now ready for the cars. A branch from Eagle Bridge, N. Y., is building to intersect at North Bennington, Vt. This will make a direct line of railway from New York City to Rouse's Point and the Canadas.

Accident to the Africa.

The Canada and Baltic arrived here last Sunday morning, from Liverpool. The Canada came out in place of the Africa, which ran ashore in a fog near the Belfast Loch, in Ireland. The Africa returned to Liverpool not greatly damaged.

ELECTRO-MAGNETISM AS A MOTIVE POWER.---Fig. 1.



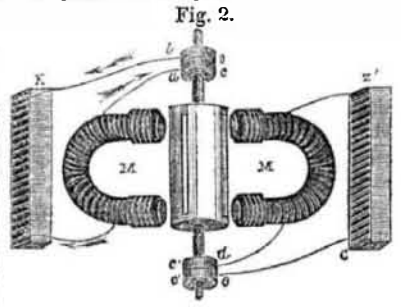
As noticed by us last week, we proceed to give the substance of Dr. Page's Lecture on his Electro Magnetic Engine, and also give a succint history of the applications of this power. We here present Prof. Page, as he appeared in the Tabernacle explaining his engine, and going over his experiments. His assistant is A. Davis, an electric engineer, and the brother of D. Davis, of Boston, so well known for his electric instruments. A number of lectures have been delivered in both the Tabernacle and Society Library, and the audiences have been of the most intellectual and scientific quality. They have given great satisfaction, both on account of their nature and the unassuming manner of the lecturer.

When he (Prof. Page) took up the subject of applying electro magnetism as a motive power, he found that all which had been done, was based upon the attractive and repulsive properties of electro magnets. An electro magnet consists, in an insulated wire, coiled round a bar of soft iron, with its ends open, and connected with a galvanic battery. When the circuit of the battery—the wire that connects the two last plates of it together, is closed, the end of the soft iron bar, which before was powerless, acquires a mysterious power, and will attract a mass of iron with great force to it. This will not produce a motive power, it is static force, but when the circuit of wire is broken, the virtue of the magnet ceases, and the attracted metal falls.

The first engine for producing motive power by electro-magnetism, was invented by Prof. Henry, now of the Smithsonian Institute. In 1833 with a battery contained in one cubic foot of space, sustained a weight of more than 3,000 pounds; and he constructed a machine to move machinery, which is described in Vol. 20, Silliman's Journal. The electro magnet has two poles, the positive and negative, and the two similar poles of two magnets repel one another. Prof. Page found that all the old electro magnetic engines were constructed on the principles of attraction and repulsion to produce motion. It is known that Davenport in our own country, Jacobi in Russia, and Davidson in Scotland made, some years ago, electro magnetic engines of considerable size; Jacobi propelled a boat on the Neva, in 1839; Davenport and Ransom Cook had quite respectable engines working in this city in 1840, and Davidson ran a locomotive, in 1842 on a railroad near the city of Glasgow, Scotland.

The engine of Jacobi was about two horse-power, that of Davidson propelled the locomotive, weighing five tons, at the rate of four miles per hour. It was equivalent to a little over one horse power, but Davidson used the attractive power alone, of the electro magnet, as is represented in fig. 2.

Fig. 2.



The axle we will suppose to be one of the locomotives, with the wheels removed, and the magnets, M M, we will suppose to be firmly fixed on the truck of the engine. We will suppose the batteries to be fixed at each end of the truck, and now, if we had two axles and four wheels, we should have the locomotive, but figure 2 will explain the principle of action much better. On the axle is a cylinder of wood, on which are secured three masses of iron at equal distances apart, and running the whole length. When one electro magnet is charged it will attract one mass of metal to it, and thus make the axle move on its axis partly round, then this magnet has its circuit broken, and the opposite magnet charged, which attracts the opposite mass of iron on the cylinder, and thus rotary motion is given to the axle and the wheels are revolved.

Near each end of the axle are two small cylinders, each one of which has the half of its rim next the large cylinder, covered with metal; the outer halves, *o o'*, are partly covered with metal, and partly with ivory; the dark spaces on *o a'* represent the conducting parts of metal; the white are the ivory.

One end of the coil around magnet, M, is connected with Z, or pole of one battery, the other end of the wire, *a*, rests on *c*, the metal rim of one small cylinder. The wire, *b*, from the other pole, K, rests on the other metal part, *o*, and thus the electric circuit is formed. The arrows point out the direction of the current, which, when the circuit is formed, renders the magnet, M, powerfully attractive, but when the circuit is broken, it has no attractive power. On the opposite small cylinder, the wire, *e*, rests on a non-conductor (the ivory) therefore the electricity cannot pass from *d* to *e*, the circuit therefore is broken, and while M is a magnet M is non-magnetic, but as the cylinder revolves, it will be noticed the ivory and the metal pieces on the small cylinders, alternately break and close the circuits, and thus alternately attract the cylinder to give it a continuous rotary motion. Davidson used 78 pairs of 13 inch plates, the negative being iron, the positive ones amalgamated zinc. The result of power was very frail for such an amount of battery surface. We have heard no more about Davidson since.

Prof. Jacobi got out of 20 square feet of platina battery surface, one horse power.

(Continued on page 68.)

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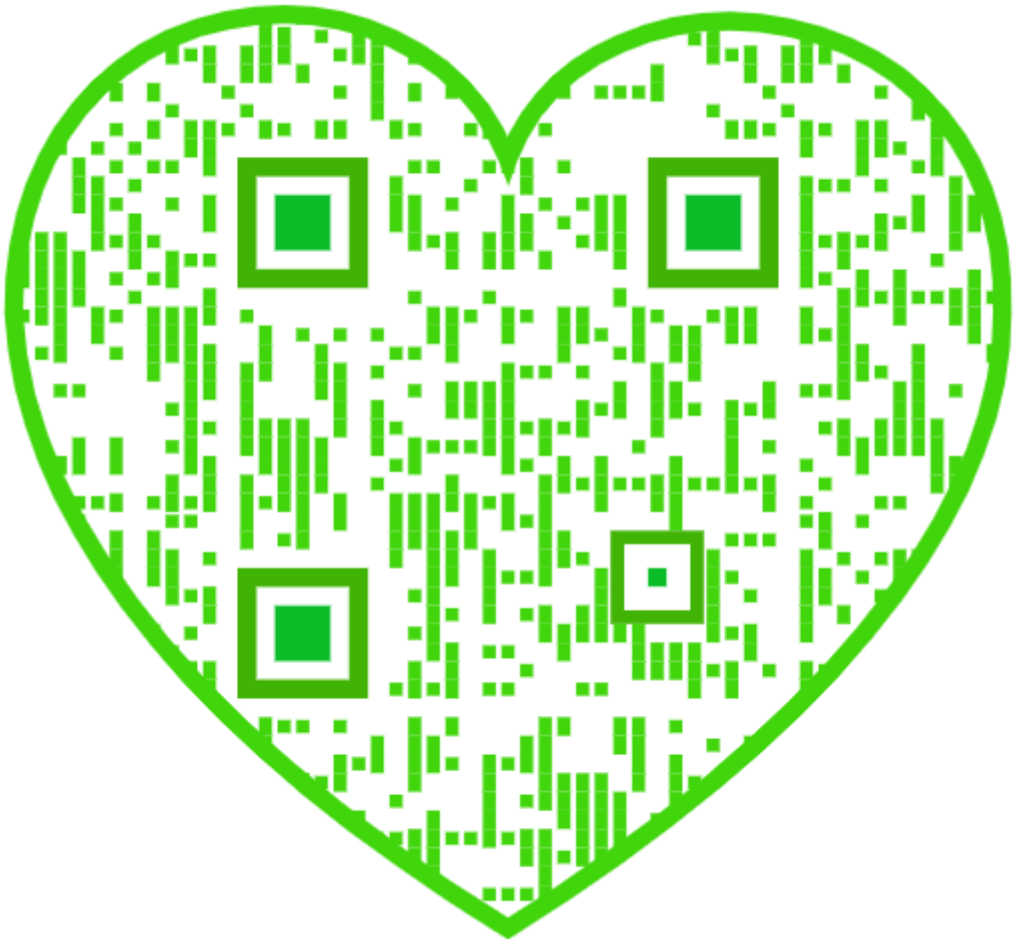

MISCELLANEOUS.

Hydraulic Pressure Engines.

A Mr. Glynn brought under the notice of the British Association in 1849 the means of employing high falls of water to produce reciprocating motion, by means of a pressure engine; this latter acted on by the power of a descending column of water upon the piston of a cylinder to give motion to pumps for raising water to a different level, or to produce a reciprocating motion for other purposes. The pressure engine was calculated to give great mechanical effect in cases where water-falls exist of much too great a height and too small a volume to be practically used efficiently on water wheels within the ordinary limits of diameter. One of these engines is at present worked at the Allport Mines, Derbyshire. The cylinder is 50 inches diameter, and the stroke 10 feet, worked by a column of water 132 feet high, so that the proportion of power to act on it was the area of a piston to that of the plunger, namely, 1,963 to 1,385, or fully 70 per cent. The engine never cost $60 a year since its erection in 1841. Its usual speed is 5 strokes per minute, but can work 7 without any concussion in the descending column. The duty actually done being equal to 163 horse power. Area of plunge 9·621 feet×10÷7 strokes=673·41. 673·41×62·5÷132=5555632 ÷33000=163 horse-power.

In this engine as in others, when water acts by its gravity or pressure, these machines do the best work when the water enters the machine without shock or impulse, and leaves it without velocity, obtaining thus all the available power that the water can yield with the least loss of effect. This result is best accomplished by making the pipes and passages of sufficient size to prevent acceleration of the hydrostatic column.

The pressure of a small column of water, as that of a common hydrant pipe, has been made to turn a coffee-mill, which it works economically and efficiently. There are many small machines which might readily be turned by the Croton water in New York, and also in other large cities by the mere descending force of the small hydrant or hose pipe. It would be in cities one of the simplest and least expensive powers.

Coins in the United States---Mint at Philadelphia.

The ancient coins are displayed in eight cases, mitred in pairs, and placed erect against the walls in the wide doorways and the middle room. The modern coins are variously arranged; part (including all those of the United States) being in a nearly level case, and part being in upright cases, disposed along the walls of the middle and west rooms. The ores, minerals, and metallic alloys are placed in the west room; in the eastern are shown the national and other medals, and the fine beams used for the adjustment of weights. The middle room also contains portraits of the directors of the mint, beginning with Rittenhouse the first director.

A great majority of the coins—almost all of those not over three hundred years old—have been culled from deposits, and consequently have cost us no more than their bullion value.

They are, moreover, the choicest of their kind; and perhaps, there are few cabinets where so large a proportion of the pieces are in so fine preservation, as well the ancient as the modern.

At the present time the aggregate of specimens is about 650 in gold, 2,100 in silver, 1,200 in bullion, brass, copper, &c.; in all, 3,950. Of these, the ancient Greek and Roman number 82 in gold, 503 in silver, and 480 in other metals; in all, 1,065.

There are a number of scarce English and Colonial coins, also some veay rare ancient Persian coins from the East India Company, and some very curious antiques from Middle Asia.

Health Extraordinary.

In the very flourishing village of Cleveland Oswego Co., N. Y., containing a population of 1,200 inhabitants, there has not been a death of either old or young since Nov. 1, 1850; nor has there been a fire, nor a case of assault and battery, nor any open breach of the peace.—[Exchange.

[Much of the good health may be set down to the indicated morality of the people; yet there are plenty of villages in America where crime is as seldom perpetrated. The village is built on a gravelly soil sloping towards the beautiful Oneida Lake. We do not believe that its drinking waters are as good as the croton in this city, but its atmosphere is certainly much purer. There is nothing extraordinary in its situation to cause so much good health among its inhabitants.

Method of Curing Prize Hams.

The hams of Maryland and Virginia have long enjoyed a wide celebrity. At the last exhibition of the Maryland States' Agricultural Society, four premiums were awarded for hams. We are informed by those who had the opportunity of examining them, that they were of first-rate quality. The following are the recipes by which the hams were cured, says the American Farmer:

T. E. Hamilton's Recipe.—First Premium.—To every 100 lb. of pork take 8 lb. of G. A. salt, 2 oz. saltpetre, 2 lb. brown sugar, 1 1-4 oz. of potash, and four gallons of water. Mix the above, and pour the brine over the meat, after it has lain in the tub for some two days. Let the hams remain six weeks in brine, and then drier several days before smoking. I have generally had the meat rubbed with fine salt, when it is packed down. The meat should be perfectly cool before packing.

J. Green's Recipe.—Second Premium.—To every 1,000 pounds of pork take half a bushel and half a peck of salt, 3 lbs. of saltpetre, 3 lbs. of sugar, and 2 quarts of molasses. Mix—rub the bacon with it well; keep on for three weeks in all; at the end of nine days take out the hams, and put those which are at the top at the bottom.

R. Brooke, Jr.'s Recipe.—Third Premium.—One bushel of fine salt, half bushel ground alum salt, one and a half pounds to a thousand lbs. pork, left to lie in pickle four weeks, hung up and smoked with hickory wood until the rind becomes a dark brown.

C. D. Singluff's Recipe.—Fourth Premium.—To 100 lbs. of green hams take 8 lbs. G. A. salt, 2 pounds brown sugar or molasses equivalent, 2 oz. saltpetre, 2 oz. pearl ashes, 4 gallons water, dissolved well; skimming off the scum arising on the surface. Pack the hams compactly in a tight vessel or cask, rubbing the fleshy part with fine salt. In a day or two pour the above pickle over the meat, taking care to keep it covered with pickle. In four to six weeks, according to the size and weight of the hams, (that is to say, the longer period for heavy hams) hang up to smoke, lock up, smoking with green hickory wood. I have put up hams for the last 12 or 15 years by the above recipe with uniform success, equal at all times to the sample now presented.

Mending Cast Iron Pots.

Mr. Balestier, who was sent by our government on a mission to the East, writes from Macao to the Commissioner of Patents, describing the mode of mending broken iron pots. He describes it as follows:—

I procured the accompanying cast iron pan, measuring 12 inches in diameter, by 4 inches deep. A crack of 3 inches was made in it in the first place, and in the second a piece was entirely broken off; giving rise to two distinct operations.

The operator commenced by breaking the edges of the fractures slightly with a hammer, so as to enlarge the fissures, after which the fractured parts were placed and held in their natural positions by means of wooden braces. The pan being ready, crucibles made of clay were laid in charcoal, and ignited in a small portable sheet iron furnace, with bellows working horizontally. As soon as the pieces of cast iron with which the crucibles were charged, were fused, it was poured on a layer of partly charred husk of rough rice, or paddy, which was previously spread on a thickly doubled cloth, the object of which is to prevent the sudden cooling and hardening of the liquid metal. Whilst in this liquid state it was quickly conveyed with the right hand to the fractured part under the vessel, and forced up with a jerk into the enlarged fissure, whilst with the left hand a paper rubber was passed over the obtruding liquid, inside the vessel, making a strong, substantial, and neat operation.

[We do not see anything very new or extraordinary in this process, it is the same as that employed by our plumbers for uniting the ends of lead pipes, only iron is the material, and not lead. Holes in iron castings are filled up by running the hot metal into them.

Improvement in Canal Locks.

W. W. Virdin, of Havre de Grace, Maryland, has taken measures to secure a patent for a good improvement in locks of canals. The object of the invention is to economise water in passing boats from one level to another, and consists in the employment of reservoirs so connected by wickets or gates with either chamber of the lock, that a portion of the water from the higher level flowing into the lock in the passage of a boat from the higher to the lower level, is made (as the boat is lowering in the lock) to pass into the reservoirs, for the purpose of assisting the succeeding boat in the opposite direction.

It is well known that the water in common locks is let down from the higher to the lower level, and none is returned back. The boat from the lower level is locked up and then the boat above is locked down in the water as it is let out from the lock; in this improvement, a number of floats working in suitable chambers are employed, and these having appropriate passages and wickets connecting them with the lower level, and to the plungers the boat is attached, and as it sinks to the lower level, the weight of the boat is made to force up water in the float chambers to the higher level, thus returning some water which by the plans now in use is entirely lost. On many occasions, the invention will be of great benefit.

Improved Planing Machine.

We learn by the Philadelphia Ledger that two new machines of the Woodworth patent "have recently been put up at the mill of Henry R. Wilson, Hamilton street, west of Broad, Philadelphia, which for rapidity of operation and fine work surpass any other machines of this patent. They are wholly of iron and one weighs about four tons. This was made by John H. Lister, of Hastings, West Chester County, New York, with various improvements suggesed by Mr. Wilson. It now turns out boards planed on both sides, and tongued and grooved, at one operation, at the rate of twenty thousand feet per day. It is capable of being changed to a flooring-board machine, that is, planing but one side, by changing the strap and displacing the under cylinder by raising the bed-plate, which requires but a minute to effect. In planing flooring-boards, it has been worked at the rate of eighty feet per minute.

The other machine was made by S. B. Schenck, of Mansfield, Mass., and has all the above improvements. There are now sixteen of the Woodworth planing machines in active operation at the mills of H. R. Wilson, Jacob P. Wilson, and George B. Sloat, working, on an average, about twelve million feet per annum.

Improvement in Turbines.

Mr. N. H. Lebby, of Charleston, S. C., has invented and taken measures to secure a patent for a very excellent improvement in Turbines, the nature of which consists in constructing the turbine with ribs on the outer face of its upper disc, working under a cover of the wheel, and which, as the wheel revolves, causes a void to be formed at or about the centre, the tendency of which is to relieve the wheel of its weights, and thereby reduce the running friction. Mr. Lebby has applied his wheel as a pump to reclaim some of the submerged rice fields near Charleston, and it has realized the expectations of the inventor and others.

Improved Carriage Wheels.

George Poe, Ellicott Mills, Md., has filed an application for a patent for improvements in the construction of carriage wheels, which is intended to strengthen the felloe or bent rim at the joint, thereby rendering it impossible for the felloe to give way at the joint, as it now does. This plan is said to obviate the use of plates, bolts, and square ferrules generally used. We hope this improvement will be found to answer an excellent purpose.

Improved Method of Ventilating Cars.

Messrs. Noble S. Barnum & Lewellyn Whitney, New Haven Connecticut, has taken measures to secure a patent for a new method of Ventilating Railroad cars, which consists in arranging air tubes on the top of the cars with branches extending through the roofs, and connected with tubes near the ceiling inside, and which extend longitudinally the entire length of each car. In them there are blowers or rotary fans for drawing in the air from the outside tubes, which run along the top of the cars. The outside tubes extend beyond where the smoke comes from the locomotive, and all the windows of the cars are fitted tight, so that no smoke nor sparks can enter, the air for ventilation being drawn into the cars by the blowers, which are worked by gearing from the engine.

Improved Corn Sheller.

Mr. John Van Horn, of Magnolia, Putnam Co., Ill., has invented a new and useful improvement in Corn Shellers and separators, for which he has taken measures to secure a patent, which consists in the employment of an inclined shoot so arranged as to allow the shoe to be placed sufficiently high that it allows a box or sack to be placed underneath a spout, and dispenses with the use of elevators.

Improvement in Making Railroad Chairs.

Mr. M. M. Ison of Etowah, Ga., has invented and taken measures to secure a patent for a useful improvement in making chairs for rails. The invention consists in a machine for making them, which takes iron bars of suitable thickness and width, and cuts off a piece for a chair, then takes it forward to dies, where it is formed, finished, and delivered at one continuous operation; but while one part is forming in one stage of its progress, another is being cut off, so that the machine combines the good quality of performing every operation distinct on one chair, without interfering with an operation on another chair in its progress of formation.

Fire Annihilator Experiments.---Tripler Hall Saved because there was no Conflagration.

How grandly Byron opens his Waterloo:

"Stop, for thy tread is on an empire's dust,
An earthquake's spoil lies sepulchred below."

Well, we pictured to our imagination, some such a scene, when, last Monday morning, we read the advertisement that Dr. Colton was to lecture on the Fire Annihilator in Tripler Hall, and demonstrate its effective properties in extinguishing fires. We resolved, like John Gilpin's admirer, to "be there and see." But reader, do not suppose Dr. Colton set Tripler Hall on fire, to extinguish it by an Annihilator, and thus annihilate all skepticism respecting its merits; no such thing,—it was a mere harmless lecture, as demonstrative of any practical qualities of the Annihilator to extinguish a conflagration, as a boy's windmill to drive Hecker's famous flouring mill, or a smoke-jack to propel the steamer Atlantic. The lecture was "all leather and prunella."

We are always willing to be convinced of errors by occular demonstration, and, when convinced, say so freely, but if ever we had a doubt respecting the efficacy of the annihilator, that doubt was confirmed by Dr. Colton's sham experiments and miserable logic. It was given out that a model house would be set on fire and extinguished; well this was all a plain falsehood, for a small house of the size of a dog-kennel was on the table, but it was not set on fire, for it was made of sheet-iron. A few dry sticks and shavings were set on fire, but they were so arranged, as we could easily see, that they would go out themselves in a very short time, but Dr. Colton put them out with a small annihilator, and we could easily have done so with our grandmother's coffee-pot. The Doctor is up to such things, he was the man who made such a fuss about Paine's Light, and gassed the public by his statements about it. He said the Fire Annihilator Company were not responsible for what he said; perhaps not, but none but the green ones believe him to have given the lecture on his own account. He evidently spoke as to an audience of dupes.

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Great Telegraph Case.---Uncertainties of Law.

In our last number we noticed the decision of Judge Kane, of Philadelphia, in reference to the Patent Telegraph Case, in which the parties were French vs. Rodgers. The action was for an infringement of Morse's patent by the Telegraph line from Philadelphia to Baltimore. This line has been termed the "Bain Line," because a chemical telegraph was employed on it. There was also a local arrangement of battery, the invention of Mr. Rodgers, used on it. The complainants alleged that all the patents of Morse were infringed by the defendants, viz., electro-magnetic action, a local battery, and Morse's Chemical Patent. The decision rendered and pronounced by Judge Kane, as published in some papers, is a very extraordinary instrument, and we cannot refrain from making some comments upon it, as it is a public document.

We have looked over the evidence given; it forms two huge volumes, and we cannot but feel that, in relation to the practical developement and discovery of the principles embraced in the Electro Magnet Telegraph of Prof. Morse, our country is more indebted to Prof. Joseph Henry than any other living man, and he has neither received the public credit nor honor, which are justly his due, much less any remuneration for his invaluable discoveries. He was the first man in the world who moved machinery by an electro magnet, and he is the inventor of the "Electro Magnet" to do so, and without this Morse's Telegraph would yet be in oblivion.

The decision rendered amounts to this,—Morse made the first "Recording Telegraph," therefore every *recording* telegraph is an infringement of Morse's patent. We have a different opinion, and believe that we can prove, by good logic and plain facts, that the said opinion of Judge Kane is incorrect. Let us quote his opinions fairly:—

"Mr. Morse's patent of 1840, in all its changes, asserts his title to two distinct patentable subjects; the first, founded on the discovery of a new art; the second, on the invention of the means of practising it.

"That he was the first to devise and practice the art of recording language, at telegraphic distances, by the dynamic force of the electro-magnet, or, indeed, by any agency whatever, is, to our minds, plain upon all the evidence.

"The third patent is for the chemical telegraph. We do not propose to enter on the discussion of this. The subject of it is clearly within the original patent of Mr. Morse, if we have correctly apprehended the legal interpretation and effect of that instrument. We will only say, that we do not hold it to have been invalidated by the decision of the learned Chief Justice of the District of Columbia, on the question of interference. The form of the two machines before were not the same; and the leading principle of both having been already appropriated and secured by the Magnetic Telegraph Patent of 1840, nothing remained but form to be the subject of interference."

The Chemical Telegraph of Bain and the Electro Magnet Telegraph of Morse are totally different inventions, and in our opinion the Chemical Telegraph did not, does not, and can not infringe Morse's patent. We could not, with the counsel for defence (although it was necessary to bring in evidence), object to the validity of Morse's patents. Judge Kane's opinion on this point, we believe, is correct and able, but the invention of Mr. Morse consists in this, that he transmits messages to a distance, using the mechanical action of an electro magnet to do so, by making marks. It consists in nothing more, and is no less, and is a beautiful invention, and we would not ruffle a single plume which justly belongs to its inventor. The Chemical Telegraph consists in transmitting messages to a distance, not using mechanical action, but chemical action to do so, by making marks. The one telegraph cannot do what the other does at all. Morse's telegraph may be compared to the action of chiselling out letters on a plate: Bain's to etching them out. Morse's telegraph is indebted to the Electro Magnet to make the marks: Bain's uses no magnet at all. Morse's marks are made, not by the direct current of galvanism from a battery, but the secondary current force of a magnet: Bain's marks are made with the current direct, using no secondary current force. The batteries of the two are also different. We cannot conceive how any man, possessing the least scientific skill, can fail to perceive that the two telegraphs are as different in essence, principle, action, construction, operation, and the effects produced, as light and darkness. The great error in the decision, in our opinion, consists in overlooking the fact that the *Recording Telegraph* is not an art in the general sense, but only a branch of it. *Telegraphing* is an art, and signalling and marking telegraphs, of which there are many, are but branches; the decision rendered, makes the recording telegraph tantamount to the *whole art*, it therefore over-rides all the testimony adduced, and hence the two huge volumes of evidence might as well have been kept in the drawers of the defendant's counsel, without submitting it at all; in fact the evidence is shabbily treated, and former decisions of other courts, totally different, are jauntily passed over. The plain error of the decision, to our view, lies in the first paragraph we have quoted. There can be no such a thing as an art apart from a process, and the very word *recording*—this *adjective*—relates to the process, it qualifies the *act*, and lawyers should always have the organ of comparison large enough to distinguish the difference between *the* act and *an* act. What is an art? Simply a process or manner of doing a thing. Recording messages without any reference to the means of doing so, is a mere abstraction,—like an abstract soldier without a gun, blade, bayonet, or any kind of arms whatever. The common and true understanding of the term "*art*" is the manner of doing a thing. Thus we have the *Art* of Printing in general, but it, like the different telegraphs, embraces different processes, all of which are distinct in themselves, and entirely different inventions. We have the art of wooden block printing (the oldest), the art of movable type printing, copperplate printing, and lithographic printing. These are all totally separate and distinct arts, but still they are all embraced in "the art of printing generally considered." Judge Woodbury, in his decision in the Morse and House trial, in Boston, 1850, held an *art* to be just as we have expressed it—*a* process or means of doing a thing, not a mere abstraction, as in the recent decision—raised up into a principle, and which, if once admitted into our Federal Courts, will destroy every principle of equity in them whatever.

There are two patentable principles in Morse's patent: one is the art, process, or means (we use the word *art* as it is understood in common usage, viz., to be the way of doing a thing) of sending telegraph messages, the other the product of the art, *the* recorded message, which is the same as the word "manufacture," in the old laws.

Our definition of Morse's legal claims is radically different from that expressed in the decision quoted. Judge Kane defines the product or manufacture to be the art; we, the process; hence he makes the manufacture or product cover different processes and other products, whereas a product, in the eye of all law, is specific and inflexible, the least variation from which is a different product (manufacture), and this is what we believe of the recorded messages of the Magnetic Telegraph and every other. He considers the product or messages produced by the Morse Telegraph, to be patentable—so do we for we believe, the word "manufacture," in the old patent law, covers this. But neither the action nor the message product or manufacture of the chemical telegraph are like those of Morse's telegraph; they are entirely different. There is a greater difference between the two telegraphs, in every point, than there is between the two printing arts or processes of movable type printing and lithographic printing—both recording arts, but distinct inventions.

It is the duty of our Courts to judge every question upon its real merits; the legal rights of any man, if they are not a day old, are just as sacred as those of one hundred years old, and if our courts do not view questions in this light, then law, with them, is a mere question of privilege, rather than of right and justice.

There is not the least resemblance, in any respect, between the inventions of Morse and Bain, and surely it cannot be equity to take away from one man that which he has invented, entirely distinct and different, and give it to another, who never invented a principle of it; yet this is what the recent decision has done. In respect to the complainants, we could not conscientiously feel easy, in being awarded property that did not belong to us; but with the author of the Bridgewater Ethical Treatise, we think this is one of the questions which, between man and man—the complainant and defendant—will yet be settled before a higher tribunal than that of an earthly court.

We feel deeply for those against whom the decision has been rendered, for we honestly and conscientiously believe, without any disparagement to Prof. Morse's invention, that the inventor of the Chemical patent has been deeply wronged and his property, in every sense of the word, has been awarded to those who have not the least moral right to it. We could not, in conscience, feel easy, with such a decision, if we were in the complainant's place. The decision does not affect the Merchants, Bain Lines in this State.

Scientific Memoranda.

Breaking and Mending Legs.—An Italian practioner, Dr. Francesco Rizzoli, sent sometime since to the Surgical Society of Paris, a paper on a peculiar plan of his, for rectifying accidental lameness, occasioned by the shortening of one leg, which sometimes occurs after fractions of the thigh. Dr. Rizzoli has very cooly advised, and has actually practised in one case, the fracture of the thigh, allowing the fragments to unite without reduction, so as to restore the correspondence of the two limbs and allow his patient to walk straight—this is a hard dose truly.

Glass Facings for Buildings.—A coresponden of the London Builder, suggests the substitution of glass for the facings of buildings; not translucent or crystal glass, but glass ground, of the requisite thickness and strength. Such a material, he adds, would not absorb the dust and smoke constantly floating in the air, but every shower would wash them off, and buildings would look as fresh and new as ever. And as glass, from recent improvements, can be moulded to any shape, almost as perfectly as if cut, the most exquisite Gothic and other ornaments could be produced.

Great Bridge.—A bridge is now contemplated to cross the Severn and connect Monmouthshire and South Wales with Bristol and the West of England. It is to be granite, 140 feet wide, with arches of 324 feet span and 120 feet above the highest spring tides, so that the largest ships will be able to sail under. On each side of the bridge will be shops, the rent of which will pay a good part of the interest on the cost. There will be room for a double railroad track and a carriage road, besides covered colonnades for foot passengers.

Hollow Brick Beams.—Some very interesting experiments were recently made in London, to test the strength of various mortars and cements. A hollow brick beam put together with Portland cement was broken down with a weight of 50,652 pounds. Another beam, whose dimensions were 21 feet 4 inches bearing between the piers, 2 feet three inches thickness at the bottom of the beam, and 1 foot 6 inches at the top, the height being 4 feet two inches, was tried. The layers of hollow brick, besides being joined with Portland cement, were held together by thin bands of iron passing through them, and the whole remained standing during the Exhibition.—When the load placed on the beam had been increased to 62,800 pounds, a crack was observed running right up the centre, and two others at equal distances on either side converging towards the centre as they extended upwards. Then the abutments were thrown out of the perpendicular, one to the extent of a foot, the other an inch and a half. Finally the beam broke right in half, the experiment terminating in the most satisfactory manner for the reputation of hollow brick construction and Portland cement. It may be stated as a curious fact in connection with this supposed new species of building material, that the use of hollow bricks was well known to the Romans, and that in Tunis, at the present time, they are in constant requisition.

Sizes of Shoes.—The Lynn Dictionary for 1851, says a size is the length of one "barley-corn," or one-third of an inch. A size stick is thus formed:—

Take a rule or piece of pine wood thirteen inches in length, and divide it into thirty-nine equal parts, of one-third of an inch each. The first thirteen are left blank, and counted nothing. The second thirteen are called children's sizes. The third thirteen are called men's and women's sizes; each marked from one to thirteen. Thus nine inches is a man's size, No. 1; ten inches is No. 4; eleven inches No. 7.; twelve inches No. 10.

Improved Clocks for Denoting the Revolutions of a Steam Engine.—An ingenious and simple contrivance has been invented by Capt. A. C. Miner, of the steamboat Charles H. Haswell, employed in the service of the U. S. government, which is intended to denote the revolutions of a steam engine.—The improvement consists of four wheels, three inches in diameter, and occupying a space of only four inches square. Each wheel has four hundred notches, or teeth. The machine works by means of a pendulum and cranks, one wheel performing an entire revolution pushes forward the second wheel one notch, so that the first wheel has to perform four hundred times four hundred revolutions, before the second wheel performs one entire revolution. The second wheel in performing one revolution pushes the third wheel forward one notch only; and the third wheel pushes forward the fourth wheel in the same way. The machine, therefore, is calculated, with thirty revolutions of the steam engine to a minute, to run for four hundred and fifty years, without any alteration. As singular as this may seem, we are assured that in practice it is correct. One is in successful operation now on board the Chas. H. Haswell. It is a mechanical curiosity.

[We copy the above from one of the best papers published in this country, for the purpose of correction. The machines described are employed on every steamship which leaves this port, and have been used on steam engines and steamships thirty years at least.

New Motive Power.—Mr. Taggart, of Roxbury, Mass., exhibits a model of an engine whose propelling agent is atmospheric pressure. The power is obtained by regular explosions of small quantities of common gunpowder. Eminent chemists have decided its operation to be feasible.—[Exchange.

[The gunpowder then must be the propelling power, and as such it has been often tried before. Its nature is unfavorable to its usefulness.

Factories in Louisiana.

The editor of the Louisiana Floridian has lately been on a visit to Woodville, and has made an extensive examination of the manufacturing establishment at the place. He says it is now making 30,000 yards of cotton cloth per week.

The factory is situated about a mile from the town on the West Feliciana Railroad, and comprises one brick building four stories high, which contains the whole apparatus for manufacturing. There are one engine, 80 horse power, 2 lappers and willows for preparing the cotton, 36 cotton cards, 2 drawing frames, 4 railway heads, 5 speeders, 1 batting card, 2 wool cards, 1 jack, 4,000 spindles, 2 spoolers, 2 wrappers, 4 dressers, 80 looms and all corresponding machinery calculated to do 38,000 yards per week.

The whole erected and put in operation by Mr. J. D. Woodworth.

The capital invested $75,000; profits when in full operation are about 50 per cent. The profits for the last week were $472 50. The number of operatives is generally 125, at a cost of $4 25c. per week.

For the operatives, there are 3 brick buildings 2 stories high, with a basement, 75 feet long. Each building contains four tenements.

Cure for Diarrhœa.

The following receipt prepared by a physician is a good cure for diarrhœa. The dose is for a grown person:—

Creosote, two drops; aromatic spirits of ammonia, thirty drops; peppermint water, two ounces—make a mixture, take one-half in the morning, the remainder in the evening; diet—arrow root.

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Electro-Magnetism as a Motive Power.

[Continued from First Page.]

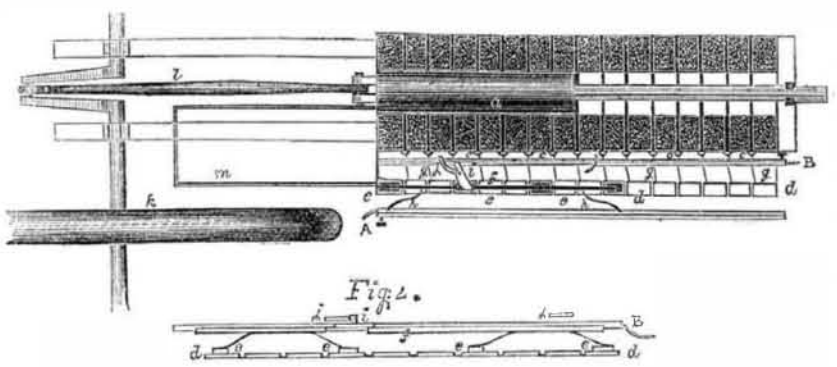
Many have believed, and now believe, that the principle of attraction and repulsion is better than the attraction alone. Davenport, of Vermont, used a walking beam engine with metal pistons moving in hollow magnetic coils, each coil forming a whole hollow cylinder.

Prof. Page's engine differs from all these in principle, in arrangement and action. He found that the magnet required time to receive the magnetism of the coil, or in the words of Snow Harris "to create a magnetic atmosphere," and it also required time when the circuit was broken, for the magnet to part with its induced magnetism; the induced magnetism or secondary current of the magnet acted also in the very opposite direction to the one required.

To remedy this he came to the conclusion that it was necessary to make the current of the magnet (the secondary current) act always in the same direction with the object to be moved, at the same time it was necessary that the magnet should always be magnetic. This was for the purpose of gaining in the element of time, as the magnet could not at once be deprived of its counter-force. He therefore adopted the principle of *hollow electro-magnetic coils*, and a number of them as represented in fig. 2. The principle by which this engine is operated is electro-magnetic attraction by the intermittent charging of a series of hollow magnets acting continuously on a piston magnet moving inside of them, in the direct line of motion, whether that line of motion be horizontal, vertical, or circular [rotary]. In figure 1, a rotary cylinder is represented on the stage, and as it was the first, it seems still to be the favorite with Mr. Page, but we have chosen this horizontal section of it for explanation, as we believe it is the best, and has mechanical advantages superior to the other, and also a longitudinal vertical section, fig. 4, of the circuit changer, which performs the same office for this engine, that a slide valve does for a steam engine.

The dark space are a series of hollow magnets formed of square copper wire wrapped round a mandril. There are about 1,500 yards of wire in each coil. These coils are covered with a non-conducting substance. When the mandril is withdrawn, and these coils fixed on a frame, they form a cylinder made up of sections, (coils). They are all connected together metallicaly, but are so arranged and connected with the cut-off or slide, that but three magnets (hollow coils) are changed at once, and one coil is being continually cut off behind, and the current being continually thrown on to the coil before in the direction in which the piston is moving. This is the peculiar feature of this engine, it is a continual electro-magnetic draught in the secondary current direction of the iron magnet; this magnet is a round mass of iron, *a*, placed in the very centre of the coils. When the coils are charged, this bar of iron moves in their inside like Mahomet's fabled coffin touching nothing. In fig. 1 is number of vertical coils, and in their inside is a huge mass of iron of 520 lbs. weight; when these coils are charged by being connected to the battery, the huge bar mysteriously rises in the very centre of the coils, when the battery circuit is broken, the bar falls. A number of persons were placed on the platform on top of this bar, and they were elevated by that mysterious agency —which cleaves the oak tree into fragments, and no less powerful here, because unseen. But let us describe the engine: the dark spaces are the hollow coils, they are secured horizontally on a suitable frame; *a* is the piston or bar of iron, which is free to move in the inside of the coils, and which is attracted with great force, backwards and forwards in the inside of the hollow coils; *l* is a piston rod secured to a double crank, which gives motion to a shaft, on which is a fly-wheel, K. This shaft by having pulleys on it, can, by bands, give motion to all kinds of machinery. In fig. 1 a circular saw is displayed, this was made to saw timber in the presence of the audience. Attached to one side of the piston rod is an arm, *m*, which works the cut off. The battery is not shown, but A is the positive wire, and B is the negative wire coming from the opposite ends of the battery. Thumb screws are represented to screw the battery wire to the rods of copper, one running along one side the whole length of the coils, and the other close to the coils on a narrow platform on the engine frame; *d d* are small blocks connected with the hollow coils by the wires, *g g*, as represented, and form the connecting points of the circuit, and perform a similar office to the ports of a steam engine; *f* is the slide moved by the arm, *m*. It has two thin strips of copper on it, separated a short distance at the middle part. Each strip has two metal spring plates, *e e*, on it, always in contact with some of the copper blocks, *d d*, as shown in figure 4. Only two of these plates, *e e*, are in connection with the battery at once, the ones for example at the left hand for the motion of *a* to the left, and the other set for its motion to the right. The wires, A B, the springs, *h h*, the slides, *e e*, and the wires, *g g*, form the electric circuit rendering the coils magnetic, therefore, as the slides move backwards and forwards, the circuit is formed alternately from coil to coil, cutting off the current behind and throwing it on ahead, as spoken of before; *i* is the stroke changer, that

Figure 3.



is, it reverses the stroke of the engine, by throwing the current from one half of the coils to the other half. This is done by two dogs or projections, *j j*, fixed on the side of the frame. The changer, *i*, is fixed on a centre-pin, and when it strikes one cam, *j*, it brings one set of slides, *e e*, to form the circuit, and when it strikes the other cam, *j*, the changer, *i*, turns on its pin and comes in contact with the strip of copper which is attached to the other slides, *e e*; there is therefore always three of the coils charged at once, as will be observed in fig. 4, but whenever a full stroke is made, the changer, *i*, at once diverts the current from one half of the coils to the other, acting upon the opposite end of A, by the three coils near the middle being first charged, and so on one after the other as the piston moves along. A stroke of any length can thus be given to the engine, a thing never done before. The common electro-magnet, say one that will attract 1,000 lbs. at one inch distant will only attract 32 lbs. if placed at two inches distant, it loses power, to use a familiar phrase, according to the square of the distance; in this engine, the piston always moves in the magnetic equator, which is the centre of the hollow coils.

The accompanying engravings represent a very ingenious Electro-Magnetic Engine, invented by Soren Hjorth, of London, and patented April 1849. The inventor proposed to apply it to propel ships and rail cars.

Fig. 5 represents the elevation of an engine made on this principle; and fig. 6 a section of the same engine. A A is a horse-shoe-formed hollow magnet, conical on the inside, coiled with copper or other wires, and suspended in such a way that it oscillates on the centre, B, with suitable bearings and plummer blocks, as shown in the figure. In the interior of this magnet is fixed a number of conical rods of different lengths. B B is another horse-shoe-formed magnet, conical on the outside, with apertures corresponding to the conical rods in the magnet, A A, and likewise coiled with wire. This magnet moves on the guide-rods, D D, which are connected together at the top

Figure 5.

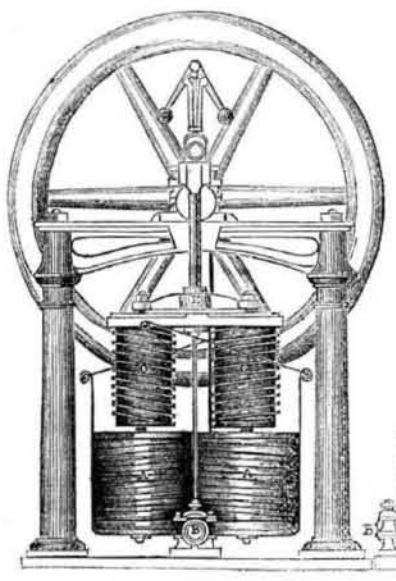
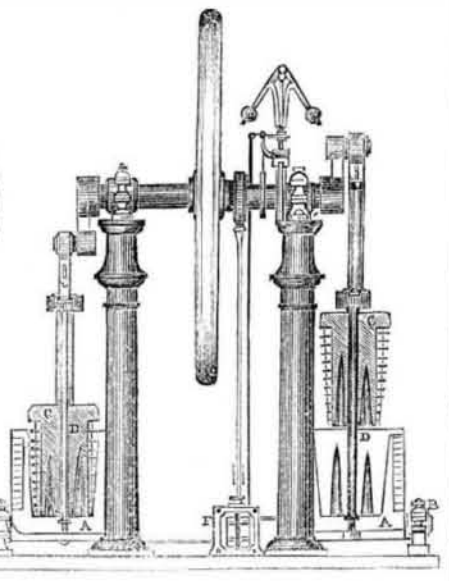


Figure 6.



by means of the cross-head, E, and fastened at the bottom of the magnet, A A. The guide-rods may also be fixed to the magnet, C C, and guided by rollers. A connecting rod is attached to the magnet, C C, in the centre, driving a fly-wheel shaft by cranks in the usual way. F is the commutator to change the electric current as required, which is similar in its mode of working to the slide valve of a steam engine, and moved in a similar way by an eccentric and eccentric-rod. The action of the engine may be reversed by the use of a supplemental eccentric. The governor serves to regulate the proper supply of the electric current to the commutator, O, as afterwards described.

The current, after being regulated by the governor, is introduced through the commutator into the helix of wires coiled round the magnet, A A, and thence through the conducting wires to the helix or coil of wires surrounding the magnets, C C, and thence through the conducting wires to the battery, or by the reverse course, as may be found convenient. As soon as the electric fluid from the batteries passes round the magnets, they exercise their power by a mutual attraction, not only in the ordinary way, but in consequence of the magnets being so shaped that the inside part of the outer magnet, as well as the outside part of the inner magnet, forms angles with the direction of motion of the moving or working magnet; and, at the same time, rods of different lengths presenting themselves at the poles of the respective magnets, the attractive power is sustained over the whole stroke by successive points and successive parts of the surfaces being brought to act upon one another during the whole stroke. When the stroke in this manner has been made by one set of magnets, the current is changed, and the other set of magnets are made effective by the current passing round them in the same manner as before described. In order to prevent the current from being broken, and also to check the momentum of the magnets, the slide in the commutator, F, is made so long that it does not leave the conducting surface which communicates with one set of magnets, until it has reached the other, communicating with the other set of magnets.

By the arrangements above described, a reciprocating motion is obtained similar to that of the common oscillating steam engines, and it will be obvious that a motion may be obtained similar to that obtained by any of the various forms of steam engines by suitable adaptations of beams, rods, cranks, &c. Thus it may be carried out as a single or a double acting engine, as an ordinary beam engine, or as a direct action engine, according as it may be required for stationary, locomotive, or marine purposes; and in all cases its form may be varied according to the circumstances of the case.

It will be observed that the difference between Hjorth's—the most ingenious magnetic engine ever produced in Europe, and that of Prof. Page, is very great. The piston, *a*, of Page's engine is a movable magnetised bar, and in every sense of the word is like the piston of a steam engine, only there is no packing or cylinder covers required. The size of battery used was 40 ten inch plates, "Grove's battery." The power had been tested by a a friction brake—the lever shown in fig. 1—and gave 8 horse power. This brake is a lever fastened to the periphery of the fly-wheel, *k*, and is eleven feet long, the fly-wheel has 13 feet circumferential surface. We did not see it tested to this power. We, among many others, believe that friction brakes are not always true tests of horse power, we prefer the elevating of a weight according to the formula of Watt, for we have seen the friction brakes give unsatisfactory results. The power of this engine, to the size of the battery, is very great, and it is asserted that by increasing the battery, the power is increased in an equal, if not greater ratio.

This is quite different from other magnetic engines, which are stated to have always produced results greatly disproportionate with large batteries. The free length of stroke which can be given to this engine, is a new and important feature, and the breaking and closing of the circuit at a distance from the magnetic pole, or bar, *a*, is another important feature, for very feeble sparks and noise are thereby produced by the engine. In figure 1, Prof. Page and Mr. Davis are represented as breaking the circuit of the battery, and producing a flame, but the flash, should be very feeble in comparison with the one represented. When the wires are placed on the end of the rounded bar, near which Mr. Davis is resting his left arm, and there drawn apart, it produces a huge flame, and a report like a pistol. There is a continuous series of flashes fleeting along, as the springs, *e e*, pass from one plate, *d*, to the other. It must not be forgotten that the changer, *i*, is continually in contact with the negative pole on the inside, and is only shifted metallically on the positive side, to throw the current from one end of the piston to the other, to give the reverse stroke. No hot wells nor pumps are employed, and the question rises, will this engine ever supersede the steam engine. This engine, unlike others, we now say, is *practical*—positive evidence having been adduced to prove this; the question is one of economy between this and the steam engine, which is also a very simple machine. We have not the means of judging of the comparative expense of this engine and the steam engine, nor of comparing the practical working of the two, but it is well known what our opinion is with respect to the steam engine—it is as yet the first of motors by a long way, and will yet be greatly improved. But a great stride in advance has been made by Prof. Page; he has produced the most perfect Electro Magnetic Engine ever built, and future improvements, if they can be made (and who doubts it), may yet bring it to be the compact motor, so desirable for aerial navigation, and without which no such art can be rendered practicable, and no fears of explosions.

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Scientific American

NEW-YORK, NOVEMBER 15, 1851.

Decisions of the Patent Office.

Our patent laws recognize the principle that every new and useful improvement is patentable, and that the exclusive manufacture, use, and sale of the useful improvement, whatever it may be, belongs to the inventor or discoverer for fourteen years. They also provide for the granting of a patent to the inventor of the improvement, upon proof of his discovery, and in order to carry out these provisions, and to protect the rights of patentees, by scrutinizing the claims of applicants, our Patent Office Department was instituted. In relation to all correspondence and action in connection with examinations of applications, the Commissioner of Patents is alone recognized by law as responsible for the correct fulfillment of all duties in connection with his office, and the following is the law by which his conduct should be ruled. Sec. 7; Act 1836:—"On filing an application (for a patent), description, and specification, and the payment of duty provided ($30), the Commissioner shall make or cause to be made an examination of the alleged new invention, or discovery, and if, on any such examination the same has not been invented or discovered by another person, in this country, before the applicant, or that it had not been patented nor described in any printed publication in this or any foreign country, nor had been in use or on sale with the applicant's consent (two years before application for a patent—Sec. 7, Act 1839), if the Commissioner shall deem it to be sufficiently useful and important, it shall be his duty to issue a patent therefor. But whenever, on such examination, it shall appear that the applicant was not the first inventor or discoverer thereof, or that any part claimed as new had before been invented, or discovered, or patented, or described, in any printed publication, or that the description is defective and insufficient, he shall notify the applicant thereof, giving him, briefly, *such information and references as may be useful in judging of the propriety of renewing his application*, or of altering his specification;" This is the law, plain and clear; we intend only to speak of that part of it respecting "the references which may be useful to an applicant in judging of the propriety of renewing his application." It is plain that the law demands of the Commissioner of Patents, that when he rejects an application for a patent, he shall (briefly, to be sure) give his reasons for so doing; and his references must not be so brief as to unfit the applicant from judging of the propriety of renewing his application. This duty is not always performed according to law, as the following rejection and reference will show:—

U. S. PATENT OFFICE, Oct. 29, 1851.

SIR—Your claims to letters patent for alleged improvements in Endless Chain Horse-Powers have been examined, and are found to present nothing new or patentable. See rejected application filed by P. McKinley for Horse Power. Yours, respectfully,

THOS. EWBANK.

—— ——, Esq.

We have not given the name of the rejected applicant in this case, but have merely presented the letter to show how unjustly he has been treated, and to show that the Commissioner of patents has not complied with the provisions of the law. How can this applicant by the above reference, form any opinion of what P. McKinley's invention is? Where is he to look for this P. McKinley: in the Highlands of Scotland, or on the plains of Ireland? And the reference is so cool—"*see rejected application of P. McKinley.*" Now there is no way to see this rejected application, but by a journey to Washington, or else by paying five or six dollars to the Patent Office for a copy of it, and, after all, as it frequently happens, the claims of the two may be totally different; and perhaps P. McKinley was rejected because some other person was rejected, and he because of some other,—in which event he might be obliged to order $20 worth of copies from the office before arriving at the real case on which he was rejected. This is a misty, unsatisfactory way of doing government business. Inventors do not want such references—they are a mockery and an insult to American citizens, and they contravene the plain language of our Patent statutes. Any person can see, at once, how inefficiently the duties of the Patent Office are performed, for the above is not a solitary case; hundreds of such references are given, and no clue afforded to the applicants of judging respecting the correctness or incorrectness of decisions in their cases. Inventors are often compelled, at great expense, to go to Washington, in order to get that satisfaction which the law demands of the Commissioner to be given by letter. We speak for justice to our inventors, and for the fulfillment of our laws; poor inventors cannot afford to pay for expensive copies of applications, nor for journeys to the Patent Office. The principal design of the Patent Office, as now instituted, is to give correct information to applicants, and enough of it, to enable them to form a good judgment of the nature of the inventions to which they were referred. The above kind of references are not only illegal, but show a thick-headedness on the part of the Patent Office. No one is satisfied with them, hence a correspondence is commenced, and naturally, on the side of the applicant, with no good feelings, and this causes a great deal of extra labor to the office. The Examiners complain of being over-worked by their six hours of labor daily, while at the same time, they might, by including in the letter of rejection a short extract from the specification referred to, of the part which bears upon the question, in cases like the above, at once give not only satisfaction, but save themselves further trouble. A fair rejection by the Patent Office always gives satisfaction.

We have brought up this subject as a matter of duty, and our citizens will at once perceive that we have said nothing unreasonable, and that for us to be silent in such a case, is to be guilty of not doing our duty as advocates and protectors of inventors rights, and the privileges of American citizens.

The New Motive Power---Centrifugal Force Stock.

About six months ago, an alleged *wonderful* invention of a New Motive Power, was brought before our citizens. It was nothing less than a machine which was to create a power without any cost, and which power was to increase at the astonishing ratio of the square of the velocity, all coming from nowhere, costing nothing, and confounding all the philosophers. Its advocates were none of your foolish *modest* great men, who upon the silly considerations of their own merits, rest satisfied to let their own works speak for themselves,—no such thing, they knew that pushing and puffing were virtues of no mean order, hence they displayed them under the full glare of a Paine's Double Reflector. Although no machines have yet been built to demonstrate the wonderful discovery claimed—it only being in existence as a machine of gas, one is *to be* constructed at some time, at least intentions to that effect have been set before the public, and certificates of stock issued.—Here is one of them:—

No. ——.—The holder of this certificate is entitled, on the presentation thereof, to the privilege of purchasing, from time to time, for ten dollars each, and vending in any part of the United States for forty dollars each,—— horse powers of Sawyer & Gwynne's Pressure Engine.

The above-named Sawyer and Gwynne are, without unneccessary delay, to demonstrate the principle of said engine, by constructing a specimen engine, at their own proper cost, in the city of New York, and to apply for letters patent; and when such letters patent are issued, are to convey by patent deed to the party presenting and duly owning, or authorized to hold this certificate, the interest herein above specified.

And they further agree not to sell otherwise in the United States, any of this power so long as any of these certificates are outstanding, and open to purchase, providing the holder keeps them duly informed that he has remaining any rights subject to be purchased by them and others.

NATHAN SAWYER,
J. STUART GWYNNE.

By John Lamb, Attorney.

We do not know how many shares in this miserable invention have been sold, but the machine will never drive a pepper mill.

Prof. Loomis, we see, has been drawn into a controversy on the subject, he writes well, but being unacquainted with practical engineering, he has fallen into errors, and has not dared to question nor confound the data of his opponents. Avery Babbitt, who somewhat magnified his opponents, and detracted from the merits of those on his own side of the question, in order, we suppose to magnify his own arguments, has written a very beautiful article on the subject, but it does not touch the main point at issue, therefore, he has been replied to, and all about a vacuum, yes, a vacuum. The whole machine is a vacuum, the ideas of its advocates revolve in a vacuum, subscribed funds will revolve in a vacuum, and the patent will be obtained in a vacuum.

The Reason Why the Water of the Dead Sea is Unfitted to Support Life.

Mr. Robert J. Graves, M. D., has communicated to the Edinburgh Philosophical Journal, a very interesting article on the causes why the waters of the Dead Sea are destitute of fish and other marine animals. The Dead Sea contains no living thing within its fatal boundaries, yet this salt sea, so famous in story, is supplied with water from fresh water rivers which abound in fish and vegetables. The surface of the Dead Sea is 1,300 feet below the level of the Mediterranean, is 1,000 feet deep, 60 miles long and 9 broad. It receives all the waters of the Sea of Galilee. A correct chart of this old lake was never given to the world until the expedition under Lieut. Lynch surveyed it. The full credit of this important fact is given to our country by Mr. Graves. It had been stated by Dr. Robinson and Mr. Warburton, that the shores of the Dead Sea were non-volcanic, but the expedition brought home specimens of lava and scoria, thus refuting former accounts.

There is another sea in the world just like the Dead Sea of Sodom, this is the Great Salt Lake of the Mormon country, discovered and explored by Lieut. Fremont. This lake contains no living thing within its bosom, and it also receives the fresh waters of Lake Utah.

The waters of the Dead Sea of Jordan contain 24 per cent. of saline matter, consisting of chlorides of potassium, sodium, calcium, magnesium, iron, manganese, with bromide of magnesium. This saline impregnation accounts for the absence of all vegetable and animal life. The waters of the Great American Salt Lake, are nearly of the same composition, and present similar phenomena to that of the Sea of Sodom.

Honors Awarded.

In consideration of the honors bestowed by the Great Exhibition, just closed in London, upon Messrs. Hecker & Brother, of the Croton Mills, this city, for the best flour, this concern opened their extensive establishment to a large number of invited guests on Thursday last. The mills were in full operation, and the excellent machinery employed gave much satisfaction to all who had the pleasure of an inspection. A beautiful collation was served to supply the appetite for the company's famous brands. It was a creditable, well managed affair. On Saturday the 8th a splendid collation was served up to the members of the New York press.

Another American Sculptor.

There is a young American artist now in Florence, named Randolph Rodgers, who has given promise of being one of our greatest artists. He has modeled a work called *Ruth* the *Gleaner*, which is considered to be the *first* work in sculpture recently brought before the world. The drapery is said to be faultless, and the whole design exhibits great genius.

American Growing Java Coffee.

A parcel of coffee of the Java bean, has been raised in Caswell, N C.; it grew in the midst of the shrubbery that decorated Dr. John T. Garland's yard. It looked as natural as the imported article. The shrub that produced this coffee is but two years old, and bears prolificly. The tree sprouted from a grain of coffee, which was planted on the north side of the house.

Coffee can be grown in the South as well as cotton.

Ague and Fever on the Mississippi.

The St. Louis Republican says:—There has not, within the knowledge of the settlers on the Upper Missouri, been such a general prevalence of ague and fever as during this fall. We crossed the Missouri at old Fort Kearney into Iowa, and from thence down through Missouri to St. Joseph, (and the country is populous,) we scarcely found a house or family that was not afflicted with the disease, or typhoid fever in some shape or form. Whole families, who have for years enjoyed uninterrupted health, were prostrated with the disease. The mortality, however, was not great. Everywhere there were complaints of the lack of what is regarded as the main remedial agent of this disease—"Quinine." Any price would have been paid for it, but none was to be had. The prevalence of this disease is attributed to the long-continued high water in the Missouri and its tributaries.

Barnhill's Premium Apple-Paring Machines.

We have received one of J. Barnhill's Premium Apple Paring Machines, from Bright & Bierce, of the Pickaway Foundry and Agricultural Warehouse, Circleville, Ohio. We must pay a decided compliment to this production of the Buckeye State, it is the best and neatest constructed apple-paring machine that we have ever seen in this city, and we have seen not a few of them.

Foundry and Machine Shop.

We call the attention of our readers to the advertisement of Messrs. Hecker & Brother, in our last week's paper, offering for sale the large establishment lately occupied by H. Waterman. From the well-known character of the late occupant, we presume the tools must be of the best class, and the eligibility of the location must command the attention of those wishing to engage in the iron foundry and machine business.

Mr. McCormick's Reaper.

Mr. McCormick, the inventor, is reported to have contracted in England for the manufacture of five hundred machines, to be in readiness before next harvest, at which time he intends visiting England to dispose of them. He has also a very extensive establishment engaged in manufacturing them in Chicago, Ill. During the fall of 1850, he manufactured one thousand six hundred, principally for the Western trade.

Patent Case.

U. S. Circuit Court, N. Y., Nov. 8th, 1851, Judge Nelson presiding, William Nevins, vs. Henry McCullum.—This was a jury trial for infringement of a machine for cutting crackers and biscuit. A verdict was given by the jury in favor of plaintiff amounting to $2,800. On a former trial the jury disagreed and were discharged.

Machine for Pulling Flax.

We learn that Mr. S. B. Goss, of Newark, Rock Co., Wis, has invented a machine for pulling flax, by which it is asserted that, with 2 horses working it, no less than 20 acres can be pulled in one day. We hope this is as represented, but the day's work mentioned is a large statement, indeed.

Shingle Machines.

Do any of our correspondents know of any good machine in operation for making shingles, which both cleaves out the shingle and shaves it by reciprocating cutters. A correspondent wishes to know if there is such a one in operation, and we presume [illegible]s to purchase it if he can.

Panama Railroad.

By the advices brought by [illegible] Cherokee, the Railroad was in operation [illegible] Navy Bay to Gataune, and hereafter the steamers of the U. S, Mail Steamship Company will proceed direct to Navy Bay, avoiding Chagres. Such, we understand, will be the instructions for the Cherokee and Ohio on their next outward voyages. It is expected that the Ohio will bring intelligence of the restoration of quiet at Chagres; but if not, the change of landing place will obviate all trouble or annoyance to passengers.

We hope that a railroad will soon be constructed through our own dominions to the Pacific. We must own the Peninsula some day.

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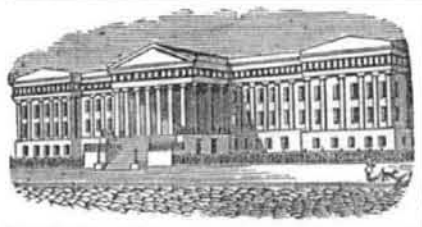

☞ Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING NOVEMBER 4, 1851.

To John Ericsson, of New York City, for improvement in Air Engines. Patented in England Dec. 26, 1850.

I claim the working cylinder and piston, and the supply cylinder and piston, of less piston surface; the two pistons being connected with each other and working together substantially as specified, in combination with the regenerator and heater, so that the air, or other circulating medium shall pass from the supply cylinder to the working cylinder, through the regenerator, substantially as specified, and give motion to the engine through the difference of area of the pistons; and this I claim, whether the air or other circulating medium be made to pass on the return stroke from the regenerator to the supply cylinder, or any other receiver, or into the atmosphere.

I also claim, in connection with the working cylinder, the employment of two regenerators, substantially as specified, in combination with the valves, or their equivalents, for the purpose of causing the air, or other circulating medium, to pass during a series of strokes through one of the regenerators to the working cylinder, and back from the working cylinder, through the other regenerators and then reversing the action, substantially as specified.

I also claim interposing the heater between the regenerator and working cylinder, substantially as specified, to heat the air, or other circulating medium, as it passes from the regenerator to the working cylinder, as specified, to supply the heat required.

And, finally, I claim, communicating the power of the engine to the working beam, or its equivalent, by the attachment thereof, to one of the pistons, or piston rods between the open ends of the two cylinders; said pistons being connected or braced to each other, substantially as specified, whereby I am enabled to render the engine compact and effectually to brace and connect the two pistons and avoid undue strain, as specified.

[See engraving in last No. of the Sci. Am.]

To Isaac Davis, of Mechanicsburgh, Ohio, for improvement in machines for Forming Horse Collars.

I claim the combination of the moving tapering block, with the adjustable stationary dies; the two being constructed and arranged substantially as set forth.

To Isaac Constant, of Buffalo Heart Grove, Ill., for improvement in Cultivators.

I claim the intermediate jointed plows, in combination with the main cultivating plows, as described, for enabling the plowman to plow nearer to or further from the rows, at will.

To N. Foster, G. Je[illegible], H. L. & C. P. Brown, of Palmyra, N. Y., for improvement in Seed Planters.

What we claim is, in combination with the seed box and cap, arranging the rotating disc vertically, and providing it with the projections and the stationary vertical dies, provided with an opening, for receiving the grain and the flanches, between which the said projections rotate, and by which the grain is carried from the seed box to the cap and thence to the seeding tube; the whole being arranged in the manner and for the purpose set forth.

To L. B. Griffith, of Honeybrook, Pa., for machine for Measuring and Cutting iron.

I claim the measuring wheel, placed in any suitable position, in combination with the cutter, bed-plate, and spring, or its equivalent, the whole being arranged and combined substantially as described for the purpose set forth.

To J. T. Hammitt, of Philadelphia, Pa., for improvement in Desks.

I claim the raising of a horizontal surface at the back part of the desk, or table, when the front part is being raised, to form an inclined plane, by means of the arrangement of the screw and lever, or any analogous device, the front part being hinged to the elevating frame, the same to be applied to standing or sitting desks, or tables, substantially in the manner and for the purpose set forth.

To J. K. Ingalls. of Bushwick, N. Y., for improvement in Radiating Surfaces.

I claim the application of the tapering form to radiating surfaces, constructed in the compact and available manner described.

To L. S. Robbins, of New York City, for improvement in Tanner's Oil from Rosin.

I claim the new and original product or manufacture which I denominate Robbins' Tanners' Oil, or Robbins' Currier's Oil; the process of producing which I have fully set forth. I also claim every use and application of my said oil.

To L. S. Robbins, of New York city, for improvement in Distilling Naptha from Rosin.

First, the process of separating the acid and water arising from the decomposition of rosin, at the temperature of 325 degrees, Fahrenheit, or thereabout, by means of fire heat, substantially in the manner set forth.

I also claim, in combination with the above, the process of separating the naptha from the other component parts of the rosin, by preserving the temperature of the liquid mass within the still, at about the range of 325 degrees, as stated, and injecting steam into the same, by which I am enabled to throw off the naptha at the same temperature employed for throwing off the acid.

I do not intend to limit my improved process of distillation, as before described, to the production of oil from rosin, but shall employ it for re-distilling the crude article known as rosin oil.

To Louis S. Robbins, of New York City, for improvement in Paint Oil from Rosin.

I claim the new and original product or manufacture, which I denominate Robbins' Patent Oil, the process of producing which I have fully set forth. I also claim every use and application of my said oil.

To Wm. P. McConnell of Washington, D. C., for improvement in the manufacture of Charcoal.

I claim the iron cylinder with a double bottom, the upper one being perforated, and these combined with several flues, covered at the top with dampers and protected within with iron rings, the whole so constructed, that the fire may be applied either on the top, under the bottom, or in all together, at pleasure, and the whole adapted, as described, to the uses and purposes specified and these only.

To James Root, of Cincinnati, O., for improvement in Folding Doors of Stoves.

I claim the sliding and folding doors, in combination with pilasters, by which I prevent the heating of the doors and warping consequent thereon, and admit a free radiation of heat from the side of the stove substantially in the manner and for the purposes set forth.

To Edward Swiney, of Andover, Mass., for improvement in processes for Dyeing Blue.

I claim a mode of producing a dark blue or color, to take the place of indigo, which color can be produced at a very great saving of expense in comparison to that incurred by the employment of indigo in the usual way.

I do not mean to claim the use of a prussiate of potash dye alone, but do claim the employment of such dye, in combination with either one or more of the above-named woods, substantially in the manner specified.

[If he uses logwood then his invention is old. How is that, Examiner?]

To Joshua Upham, of Salem, Mass., for improvement in Compounds for Extinguishing Fires.

I am aware that it is known that sulphurous acid gas will extinguish the flame of a taper, or any such like small flame. I therefore do not claim such as my invention or discovery, but I claim the application of a compound of sulphur and nitre in a state of combustion, within a room or apartment on fire, for the purpose of extinguishing the fire tending to destroy the said room or building.

[Another Fire Annihilator. Why did he not add a little charcoal to make it more effective].

To James Webster, of Leicester, England, for improvement in Springs. Patented in England, February 11, 1851.

I claim the specified mode of arranging or combining springs and inclined planes or surfaces, curved or plane, so that the point or arms of the springs may be applied to or press against the inclines or inclined planes, for the purpose of thereby obtaining the action of such springs, in the manner described.

To Geo. W. Beardslee, of Albany, N. Y., for improvements in Planing Machines.

I claim the application of springs or weights to cutter stocks, both at their point in line with the cutting edge of the knife, and also to the heel, by which a double action is given to the stock, both at the heel and edge, allowing it to rise and oscillate to the inequalities of boards or plank, substantially as described and for the purpose set forth.

To Levi Bissell, of New York City, (assignor to himself and Lyman Kinsley, of Canton, Mass., for improvement in Carriage Springs.

My improvement claimed consists in combining two buttress blocks with the wood bar and the metallic strap bar, in the manner substantially as specified, so that such blocks, when the spring is in use, shall act as levers to compress the wood and counteract the tendency of the fibres to be elongated and ruptured by the downward strain.

To L. S. Chichester, of Williamsburgh, N. Y., for improvement in machine for Dressing Staves.

I claim dressing staves by means of stationary knives, in combination with a pressure roller directly over the cut, when this is combined with the bed constructed with a raised portion where the cutting is done for the purpose of allowing a crooked or bent stave, freedom of motion while being dressed, substantially as described.

To W. B. Mulligan, of Edinburgh, Va., for improvement in Bating and Tanning Hides.

I claim the method described of bating hides and other skins, in the process of tanning, by subjecting them to a vapor bath applied substantially in the manner described.

I also claim the combination of the rocking frame and the shaft above, the two being connected as set forth, in such a manner that the shaft may be used either to rock the frame or to raise it from the vat.

ADDITIONAL IMPROVEMENT.

To Henry Pace, Sen., of Cincinnati, O., for improvement in Bedsteads. Originally patented Dec. 10, 1846.

I claim the mode of jointing the head and foot rails, and of reversing the arm of the winch, as described.

The London Patent Journal on the Scientific American.

There is no greater blessing secured to our people than our untaxed literature. It is no doubt true that in reference to the matter contained in newspapers, the press is no more trammelled in Great Britain than it is in America; but yet for all this, ours is the only country in the world where "fredom of the press"—that "palladium of our liberties," as Edmund Burke has it, is *fully* secured. In every country in Europe but England, the press is fettered to the will of the government as to what it must and can say; in England it is not fettered with the despotism of government will, but it is with a government tax. This much may be said in palliation of it; the enormous outlay of that government demands an immense income, and a tax on the press can only be justified as a duty. In our opinion, this tax works injuriously to the people of England, and this we think is quite clear, especially in respect to the tax upon periodicals devoted to science and the useful arts. Our people possess advantages over the mechanics of Great Britain in this respect, of no ordinary kind, and the testimony of our worthy cotemporary, the "London Patent Journal," which we here quote, will at once set this matter in a clear light before our people.

"THE SCIENTIFIC AMERICAN.—Our cotemporary enters upon its eighth volume with increased talent and energy. New type and a better paper go far to improve its outward appearance, while the greater number of wood engravings, and the increased quantity of original matter, attest the desire of the conductors to render the work worthy of the American public. We may be allowed to say, from our knowledge of American literature, that the Scientific American is excelled by few periodicals, and to us Englishmen, taxed as we are from the cradle to the grave, in everything and for everything, more especially in all that relates to knowledge, it is a marvel that a large sheet, well printed on good paper, illustrated with a host of engravings, and furnished with articles on science of no mean order, can be sold for 2 dollars a year, or not quite 2d. a number. The tax in this country of 2½d. per lb. on paper, and the advertisement duty of 1s. 6d., would effectually prevent such a periodical being published here, except at an immense loss. If we had any right to call upon the conductors of the Scientific American to render a service to this nation, we would ask them to send a copy of their journal to all the ministers and members of the House of Commons. Perhaps it might then occur to some of these men, to inquire whether it be patriotic or advantageous in any point of view to put a ban on the publication of cheap literature; and to consider that, while American artisans have the opportunity of improving their minds, of enlarging their ideas, and of exercising the inventive faculties which England *feels* at the present moment they so largely possess, English artisans are left to the brutalizing beer-shop, as in Manchester at the present day, to wallow in every imaginable vice, with no other literature at their command than the penny pandering trash which emanates from Holy-well street. It is a scandal to this enlightened country, but it is a truth, that in Manchester, Birmingham, Leeds, Glasgow, and Bradford, the working classes care only for that species of reading which some mildly call "light;" and that the works which sell the best are those which should not be sold at all. And until this evil be abated by offering literature of merit equally cheap (and this cannot be done with the present taxes), it is vain to talk of levying an education rate (another tax), or of the voluntary or any other system of bettering the morals of the lower classes.

The Wheeling Bridge.

"Six great railroad lines will soon meet on the banks of the Ohio river at Wheeling.—The first and most important of these, is our own great line leading from Alton through Terre Haute and Columbus, to Wheeling:—The second, that from Cincinnatti, leading to Wheeling by the way of Marietta: The third is a line projected from Sandusky, on Lake Erie, by Louisville and Cadiz, we believe, to Wheeling: The fourth which is a road partly constructed, and of which the extension on to Wheeling is now seriously agitated at Pittsburg—follows the bends of the Ohio river. The fifth is the Hempfield road, by which we of the West are to obtain the shortest possible line to Philadelphia and New York: The sixth, is the Baltimore and Ohio road which is now rapidly drawing to completion, and by which the Western people north of the Ohio can best proceed to the Southern cities.

But it appears that while there will soon be six railroads needing this bridge to cross the Ohio at Wheeling, there are six steamboats owned at Pittsburg, having excessively long pipes, which the proprietors declare they will neither shorten nor lower in times of high water for the benefit of the cross travel. This question, involving the relative rights of these six punctilious boat owners on the one side, and those of the people of the United States on the other, is presently to be decided by the Supreme Court. We shall look with interest for the decree. If the people of this country cannot have continuous railroads across the great rivers, they ought to know it soon."

[The above is from the Alton Telegraph, Ill., and is worthy of attention. It is to be regretted that this noble bridge should be assailed by Pennsylvania, especially when we consider that in every important point she will be the gainer by its use.

Hussey and McCormick's Reaper.

We have seen some statements in our exchanges respecting a recent trial between the Hussey and McCormick's American Reaping Machines, in the presence of a large agricultural assemblage in England, in which the Hussey Reaper was declared on all important points to be superior. This judgment is exactly the reverse of that given by the Exhibition Jurors, and is also different from ours·

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TO CORRESPONDENTS.

W. H., of N. Y.—We cannot reply to your inquiries as you have put them: if you wish our opinion on your Sewing Machine, we shall require you to furnish us with a sketch and description, or a model.

E. A., of Mich.—We have examined the model of your sash fastener; it does not contain any patentable novelty. See Arnold's Patent, illustrated in Vol. 4, Sci. Am.

J. W. W., of Vt.—There are no patents upon the Camera Obscura, nor improvements of any particular importance, since Dr. Woolaston's day. There are extensive glass works in Brooklyn, N. Y., and Jersey City, N. J. We do not understand their mode of transacting business.

A. H., of St. Louis—An engraving of your apparatus will cost $8; this can be done before or after your application is acted on at the office.

J. B., of Pa—When your patent is issued you can send us the drawings and description for publication, —no one could well understand the contrivance from the explanation given.

W. H. G., of Ohio.—It would not be easy for us to furnish such information as you desire, as our time would not permit of it. We would like to do so, notwithstanding.

N. A., of Ct.—We would think it quite difficult to get a patent for the Clothes Line Reel; boxes having reels encased for the same purpose. have long been in use, and such additions as you have made, although convenient and useful, could not be patented, and you are advised not to apply.

G. J. M., of Ct.—We have no charge against you, and shall be glad to learn that our advice is of service.

J. H. R., of Pa.—At present our wants are fully supplied: we cannot tell now what we may require in the spring, but think, as we have a number of young men who are making rapid progress, that our corps will be full for 12 months at least.

E. B. J., of N. Y.—We are unable to state where such machinery as you want can be had; it is not made in this section.

J. P., of Pa.—There is no such work as the Journal of Gas Lighting, nor any work which will give such information as you desire.

J. J., of Ohio.—Your fence, we believe, is a very convenient one, and has much to recommend it, but we do not see on what point we could institute a patent claim. Have you read our history of propellers in Volume 5? In the small volume published, of the same, you will find your devices, in principle, illustrated on pages 42, 43, 74, 76, and 77.

T. G. C., of Ohio.—Your amendments to the Patent Laware embraced in the printed Bill, and in that of J. L. Mott, of this city, both of which were before the last Congress. We believe as you do.

C. B. F., of Pa.—We are obliged to you for the facts communicated; we may use them some other time.

D. R., of Pa.—The address is Henry Carey Baird, Philadelphia; we presume there is some error which would be explained by letter.

S. D. S., of Ohio—You say you think the fee charged by us is large, and think our reason is because you are a poor man. This is really very bad philosophy, and places us, if true, in rather an unenviable position towards the poor. We have always considered poverty no crime, and have taken refreshment under this impression. Of course we do not expect nor wish to be employed to do your business under such circumstances.

F. K., of Ct.—Well: your invitation is one that would be rather expensive for us to accept: the only way for you to secure your invention is to make a model and apply for a patent as soon as possible; we can give no better advice, if it is new and useful.

F. D., of Vo.—Mr. Cary resides at Brockport, N. Y. His patent was secured through our office, and we believe his invention to be a meritorious one.

A. & W. B., of N. Y.—Your model was found at the Patent Office, hence there is no necessity for you to furnish another.

E. L. S., of Mass.—The invention to which you refer has never been patented.

B. L., of C. E.—The high rates of postage on papers sent out of the States prevent many from subscribing to papers published in this city, who otherwise would. We can offer you no inducement worthy acceptance; the amount we are obliged to deduct from each yearly subscription from your place is 50 cents.

A. P. G., of Ill.—You cannot obtain such a work as you want. What publications there are upon carriage building and painting are of ancient date, and would not suit your wants.

D. C., of Ill.—We think small-sized planing machines are manufactured by Oliver Snow & Co., of Meriden, Ct.

Money received on account of Patent Office business for the week ending November 8.

W. D. V., of N. Y., $35; C. J. B., of N. H., $50; J. P. S. & Co., of Ct., $20; F. H. M., of N. Y., $32; G. J. W., of Me., $30.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Nov. 8:—

A. W., of Mass.; C. & McD., of Pa.; D. T., of N. Y.; W. H. H., of N. J.; W. W. V., of Md., and W. D. V., of N. Y., C. T., of N. Y.

Sending Receipts.---Postage on Books.

The Post Office Laws do not allow publishers to enclose receipts; when the paper comes regular subscribers may consider their money as received.

Subscribers ordering books or pamphlets are particularly requested to remit sufficient to pay postage.

An Important Paragraph.

To preclude subscribers the necessity of writing for back numbers of the Scientific American, we shall forward all the back numbers of Volume 7, dating their subscriptions from the commencement unless they instruct to the contrary. We shall send the back numbers issued on this Volume until No. 13, after that time the names will be entered from the date of the reception of orders, unless the writer expresses a wish to receive the back numbers.

Whenever our friends order numbers they have missed—we always send them if we have them on hand. We make this statement to save time and trouble, to which we are subjected in replying when the numbers called for cannot be supplied.

Back Numbers and Volumes.

In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2 and 3—none.

Of Volume 4, about 200 Nos.; price 50 cts.

Of Volume 5, all; price, in sheets, $2; bound, $2,75.

Of Volume 6, all price in sheets, $2; bound, $2,75.

ADVERTISEMENTS.

Terms of Advertising.

One square of 8 lines, 50 cents for each insertion.
" 12 lines, 75 cts., " "
" 16 lines, $1,00 " "

Advertisements should not exceed 16 lines, and cuts cannot be inserted in connection with them at any price.

American and Foreign Patent Agency

IMPORTANT TO INVENTORS.---The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

MUNN & CO., Scientific American Office,
128 Fulton street, New York.

PAINTS, &c. &c.—American Atomic Drier, Graining Colors, Anti-friction Paste, Gold Size, Zinc Drier, and Stove Polish.

QUARTERMAN & SON, 114 John st.,
48tf Painters and Chemists.

JOHNSON'S UNEQUALLED SAW GUMMER for gumming out the teeth of saws, an article indispensible for saw mill owners. This article has been thoroughly tried and well approved, for sale by G. A. KIRTLAND, 205 South street, New York. 9 9*

McCORMICK'S PATENT REAPERS AND MOWERS.—1700 of these machines, for which the great Medal of the World's Fair was awarded, are being manufactured at Chicago, Ill, with the intention of supplying the South-eastern States for the next harvest The gold medal of the Chicago Institute was recently awarded for this Reaper and Mower, tested against two other mowers, in cutting prairie grass; and the first premium of the State Agricultural Societies of Wisconsin, Michigan and Pennsylvania, were also awarded at their late Fairs. Price $120 at Chicago, and $122 delivered at Philadelphia; terms otherwise accommodating. 9tf

1851 TO 1856.----WOODWORTH'S PATENT Planing Machines.—Ninety-nine hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's Machine. Price of the machine from $150 to $700. For rights in the unoccupied towns and counties of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 9 10*

BALLOONS.—I am prepared to manufacture Hydrogen Balloons of from 1 pound to 50,000 lbs. ascending power to order. Balloons capable of carrying up one or two persons always on hand. The Balloons will be of the most perfect construction, so that any person can, with certainty and safety ascend with them. Instructions to insure success given to purchasers gratis. JOHN WISE, Lancaster, Pa. 9 10*

A CARD.—The undersigned begs leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers and manufactures of all kinds of instruments, to his new and extensive assortment of fine English (Stubs) and Swiss Files and Tools; also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English style—which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN Importer of Watchmakers' and Jewellers' Files and Tools and manufacturer of Mathematical Instruments 154 Fulton st. 6 9*

BROOM MACHINERY.—The most improved and durable machinery for the manufacture of Brooms, for sale by JACOB GRAY, Scotia, Schenectady Co., N. Y. Address post-paid. 4 8*

PALMER'S ARTIFICIAL LEGS.—Manufactured at Springfield, Mass., and 376 Chestnut-st. Philadelphia, by Messrs. Palmer & Co.—All orders from New York and New England must be made to Palmer & Co. Springfield, Mass.—"I have examined carefully the Artificial Leg, invented by Mr. B. F. Palmer; its construction is simple and its execution beautiful; and what is most important, those who have the misfortune to require a substitute for a natural limb and the good fortune to use it—all concur in bearing practical testimony to its superiority in comfort and utility. VALENTINE MOTT.
New York, Jan. 29, '51. 39 6meow*

TRAUTWINE ON RAILROAD CURVES.—By John C. Trautwine, Civil Engineer, Philadelphia; just published and for sale by WM HAMILTON, Actuary of the Franklin Institute Price $1.

"This is a really good work, and we heartily recommend it to our civil engineers."—[Scientific Am.

"We have carefully examined this work, and regardit as the best that has yet appeared on the subject," &c.—[Am. Railroad Jour. 8 10*

PATENT FELLY MACHINE.—This machine, for cutting fellys for wheels, is superior to anything of the kind for that object; with it, cutters are used instead of saws, and are easily adjusted to produce any required circle, in common use, leaving them perfectly smooth, thereby making a great saving of expense in dressing them for use. This machine was patented in 1850. For machines, or county and State rights, address JOSEPH ADAMS & SON, Amherst, Mass.; J. B. Wynne, Agent for the State of S. C. P. S.—Agents wanted to travel in Southern and Western States, to sell rights for the above machine. Good references will be required. 6 4

POST'S PATENT SLIDING DOOR FRONTS—For Stores and Public Buildings; a new, cheap, and simple fixture for securing store fronts, which renders them fire and burglar proof, has been invented and patented by the subscriber, who is now prepared to sell rights. Messrs. Quarterman & Son, 114 John st., N. Y., are general agents. Address (post paid) Wm. POST, Architect, Flushing, L. I. 6 3m

TILTON's Patent Violin.—The undersigned having patented his Violin Improvement, is prepared to exhibit it to the public. Being now in New York, he may be found at No. 18 Park Place (Mr. J. Wiley's), where he will be pleased to see such gentlemen as take an interest in his invention. All communications addressed "Wm. B. Tilton & Co.," as above, or at Carrolton, Pickens Co., Ala.
3 12* WM. B. TILTON.

LEROW & BLODGETT'S PATENT ROTARY SEWING MACHINE.—The undersigned, having purchased the right to use, sell, and manufacture these machines for the States of Alabama and Mississippi, and their other business engagements preventing them from giving it their personal attention, they are disposed to sell out their right to the above-mentioned States, or counties in them, if preferred, upon favorable terms. To an energetic and industrious man we will sell upon such terms as will insure a large and handsome profit. Apply to Mr. W. SCRUGGS, of the firm of Messrs. Scruggs, Drake & Co., Charleston, S. C., or to WM. MAILLER, Decatur, Ala. 4 8*

PROFESSOR ALEX. C. BARRY'S TRICOPHEROUS OR MEDICATED COMPOUND.—Professor Barry does not hesitate to put his Tricopherous, for the two grand requisites of efficacy and cheapness, against any preparation for cleansing, renewing, preserving, and strengthening the Hair, that has ever been advertised or offered for sale. He challenges the associated skill and science of the medical world to produce, at any price, an exhibition that will [illegible] every case of scrofulous diseases and severe cuts, sprains, pains, &c. Sold in large bottles, price 25 cents, at the principal office, 137 Broadway, New York, and by the principal merchants and druggists throughout the United States, Canada, Mexico, West Indies, Great Britain, France, &c. 4 12*

CLOCKS FOR CHURCHES, PUBLIC BUILDINGS, RAILROAD STATIONS, &c., and REGULATORS FOR JEWELLERS.—The undersigned having succeeded in counteracting effectually the influence of the changes of the temperature upon the pendulum, and introduced other important improvements in the construction of clocks, are prepared to furnish an article, superior in every respect (the highest grade warranted to vary less than two minutes in a year) to any made in the United States. Complete opportunity will be afforded to test their qualities. Glass (illuminated) dials of the most beautiful description furnished. Address SHERRY & BYRAM, Oakland Works, Sag Harbor, Long Island, N. Y.

"At the Oakland Works of Sherry & Byram there are made some of the finest clocks in the world."—[Scientific American.

"Mr. Byram is a rare mechanical genius."—[Jour. of Commerce. 5tf.

PATENT CAR AXLE LATHE—I am now manufacturing, and have for sale, the above lathes; weight, 5,500 pounds, price $600. I will furnish a man with each lathe, who will turn and finish axles for 50 cents each, if desired. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs., price $225. The above lathe warranted to give good satisfaction. J. D. WHITE, Hartford, Ct. 7 6m*

MACHINERY FOR SALE—Four dead spindle filling frames, 1-16 strand speeder, 1 warper, 1 lapper, &c. Also turbine water wheels, 6 ft. diameter, of most approved patterns, at $275 each; a breast wheel, &c.; 20 feet long, and an iron under-shot water-wheel. ELI WHITNEY.
New Haven, Oct. 22, 1851. 7 6*

VALUABLE WATER POWER and Machinery for sale in Virginia.—This property is situated on the Rivanna River and Virginia Central Railroad, within one and a half miles of the town of Charlottesville, and known as the "Charlottsville Factory." The river is navigable from Richmond to the spot.. The property consists of an abundant water power, about 13 acres of land, a cotton and woollen factory, containing 552 spindles and 12 looms, with the usual accompaniment of machinery, wool cards, jack, &c., grist, plaster, and saw mills, iron foundry, brick store-house, and dwellings for some ten or a dozen families; also a variety of carpenters', machinists', and blacksmiths' tools, comprising cutting engine, lathes, screw tools, &c. The entire property will be sold at public auction on Thursday, Dec. 2nd next, on very accommodating terms. For further information address J. W. Saunders, J. A. Marchant, or the undersigned, Charlottesville, Va.,
8 3* HENRY W. JONES.

IRON FOUNDERS MATERIALS—viz.: fine ground and Bolted Sea Coal; Charcoal, Lehigh, Soapstone and Black Lead Facing. Iron and brass moulding sand; Fire Clay, Fire sand and Kaolin;—also English, Scotch and Welsh Fire Bricks—plain arch, circular and tower cupola—for sale by G. O. ROBERTSON Liberty place, between 57 and 59 Liberty-st. (near the Post Office) N. Y. 7 12*

GREGORY'S PATENT EQUALIZER, for Engines using steam expansively.—This invention largely economizes fuel, and may be attached, at a trifling cost, to any engine now working, high or low pressure, on land or water, City, County, and State Rights for sale. Terms and particulars may be had, by letter, or on personal application to T. B. ROBERTSON, Agent, 120 Water st., N. Y. N. B.—A liberal commission allowed. 7 4*

SCRANTON & PARSHLEY, Tool Builders, New Haven, Conn., have on hand six 12 ft. slide lathes, 28 in. swing; also four 8 ft. do.; 21 in. swing, with back and screw gearing, with all the fixtures; one 5 ft. power planer; 12 drill presses, 4 bolt cutting machines, 30 small slide rests; 5 back geared hand lathes, 21 in. swing; 15 do. not geared; 8 do. 17 in. swing on shears 5 1-2 feet; 25 ditto with and without shears, 13 in. swing; counter shafts, all hung if wanted suitable to the lathes. Scroll chucks on hand; also index plates for gear cutting. Cuts of the above can be had by addressing as above, post-paid. 47tf

BEARDSLEE'S PATENT PLANING MAchine, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 5tf

WATTS & BELCHER, Manufacturers of Steam Engines, Lathes, Planing Machines, Power Presses, and Mechanics' Tools of all descriptions. Orders respectfully solicited and punctually attended to. Washington Factory, Newark, N. J. 7 20*

LIST OF PRICES of Universal Screw Chucks, manufactured and for sale by O. L. REYNOLDS, Dover, N. H.:—4 inch. diameter, $12 6 inches, $18; 9 inches, $25; 12 inches, $30: 15 inches, $35; 18 inches, $40. 7 4*

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tenoning machines; Belting; machinery Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 1tf

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers—from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England Scotland, France and Germany—for Locomotive Marine and other steam Engine Boilers.

THOS. PROSSER & SON, Patentees,
1tf 28 Platt-st. N. Y.

LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line, and does [illegible] perfect frames for the low price of $25 boxed and shipped with directions for setting up. Address (post paid) MUNN & CO.
At this Office.

MALLEABLE IRON FOUNDRY, EASTON, Mass.—The subscriber continues to manufacture castings of every variety. for machinery and other purposes, of the best quality, at the above establishment, we have facilities for making castings 5 1-2 feet in length. Persons wishing castings can send patterns to Easton Express, Boston, Mass. All letters will be promptly attended to.
8 10* DANIEL BELCHER.

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, New Haven, Ct.; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 37tf

LEONARD'S MACHINERY DEPOT, 109 Pearl-st. 60 Beaver N. Y.—The subscriber is constantly receiving and offers for sale a great variety of articles connected with the mechanical and manufacturing interest, viz.: Machinists' Tools—engines and hand lathes; iron planing and vertical drilling machines; cutting engines, slotting machines; bolt cutters; sliderests; universal chucks &c. Carpenters' Tools—mortising and tennoning machines; wood planing machines &c. Steam Engines and Boilers from 5 to 100 horse power. Mill Gearing—wrought iron shafting; brass and iron castings made to order. Cotton and Woolen machinery furnished from the best makers. Cotton Gins; hand and power presses. Leather Banding of all widths made in a superior manner; manufacturers' Findings of every description. P. A. LEONARD. 48tf

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclining planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

RAILROAD CAR MANUFACTORY—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty, and good taste, as well as strength and durability, we are determined our work shall not be surpassed. JOHN R. TRACY,
39tf. THOMAS J. FALES.

BEST CAST STEEL AXLES AND TYRES, (a new article,) for Railroad Carriages and Locomotives. The quality of this steel is sufficiently attested in the announcement that it has carried off the first prizes awarded at the World's competition of 1851, in London. The axles are in general use on the Continent, and are now offered in competition with any other that can be produced; and to be tested in anyway that may be desired by the engineers of the United States, either by impact or by torsion. This steel is manufactured by Fried Krupp, Esq., of Essen, in Rhenish Prussia, represented in the United States by THOS. PROSSER & SON, 28 Platt st., N. Y.
2tf.

TO ENGINEERS.—A new Work on the Marine Boilers of the United States, prepared from authentic Drawings and Illustrated by 70 Engravings—among which are those of the fastest and best steamers in the country—has just been published by B. H. BARTOL, Engineer, and is for sale at the store of D. APPLETON & CO.,
1 12* 200 Broadway.

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SCIENTIFIC MUSEUM.

[For the Scientific American.]

Philosophy.

The word Philosophy signifies the "Love of Wisdom." Wisdom consists in an intimate acquaintance with the rules and ordinances of nature, as established by the Creator, and manifested by those laws which regulate and maintain in existence the material universe, both animate and inanimate. The more we become acquainted with these laws, the simpler and fewer we perceive them to be, and yet, on account of the great diversity of substances, and infinite variety of circumstances under which they manifest their presence, no human being is or ever can become familiarly acquainted with their phenomena and effects. But he who possesses the most extensive knowledge of them, and observes and obeys them most diligently in all his actions, is the greatest philosopher, both theoretically and practically, and will infallibly be the happiest man.

Almost every person becomes more or less familiar with some of these natural laws, by daily experience; but this is generally a dear school. Thousands annually lose their property, their health, and their lives, in consequence of violating nature's laws; and other thousands are so fool-hardy as to suppose they can violate them, and yet escape the penalty which God has annexed. But, as these laws are established for the benefit of every individual, and cannot be dispensed with consistent with the welfare of the whole, so they are inflexible and impartial in all their operations, and invariably execute their penalties upon the wise and the ignorant, the Christian and the heathen, alike.

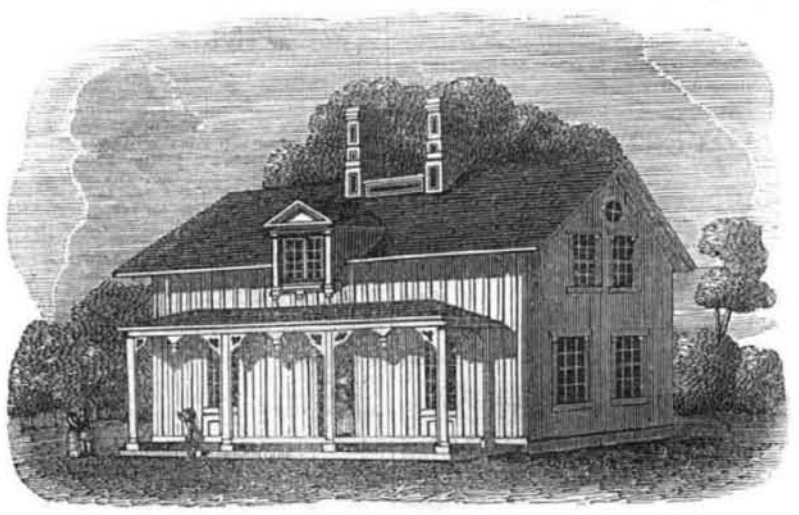
How vastly important, then, is it, that every human being should make himself thoroughly conversant with the laws of his Creator—mental, organic, moral, and physical—and obey them. Here our happiness and our pleasure, our duty and our interest, coincide; for, surely, in the wide world there can be no greater pleasure than the study of our Creator's laws, even independent of the benefit we derive from this study. Though the mental exertion may sometimes be irksome, at first, (for all new employments which require intense application, are so until our organs adapt themselves to the particular pursuit we are engaged in) yet, being continually nourished and refreshed with the most wholesome food, and invigorated by steady healthful exercise, our minds soon acquire a relish for the pursuit of knowledge which the most copious draughts at the inexhaustible fountain of wisdom can never satisfy; and we rise on the pinions of love Divine till "we mount from Nature up to Nature's God," and become entranced within effable delight, adoration, and astonishment, at the boundless wisdom, power, and goodness of the Creator of all things. We may subjoin a few instances in which ignorance involves the transgressor in the most serious calamities.

Carbonic acid gas is constantly generated in large quantities in the lungs of human and animal beings, and thrown out by their breath as well as by combustion of vegetable substances. This gas is nearly twice as heavy as an equal volume of common air, and therefore floats about near the earth's surface, and is inspired by vegetables, for whose use it was created, with the same greediness we inhale air. But if it find no vegetable to consume it, this gas sinks into the lowest places it can find, and becomes, consequently, often confined in dry wells, or wells containing perfectly soft water, where it renders any living being that is imprudent enough to go down, at once senseless and helpless. Now, it has long been known to chemists that this carbonic acid gas has a strong affinity for lime, and that the two unite instantly when put together, forming a carbonate of lime. But the application of this knowledge was reserved for a lady in Ohio, who, ignorant of the principle, poured a few pailsfull of common hard water on her husband who lay senseless at the bottom of his well, and thus saved him from otherwise certain death, by reviving him instantly and enabling him to come out. Of course the more lime in the water the better. Let the incredulous consult any good work on chemistry.

Atmospheric air is one of the worst conductors of heat we are acquainted with, and this is the reason why air, confined between the plastering and wall of a building renders it so much warmer in winter and cooler in summer than another building which is plastered on the wall without lathing. Any fleecy substance, such as wool, fur, snow, etc., contain air in their interstices, and therefore confine heat. Consequently woolen and fur clothing keep a person warm when the weather is cold, and cool when he goes into a heated room or oven; and a heap of snow has saved persons from perishing by confining the natural heat of their bodies around them. Again, if ashes are taken warm from the hearth or stove, with the least spark of live coal in them, the stagnant air confined in the ashes will confine all the heat, and cinder will kindle cinder untill the whole mass of ashes becomes red hot. I have seen this happen in my own cellar when the ashes were removed with care, and not the least spark was at any time perceptible till the sides of the box were burned as thin as pasteboard, and fell into pieces. I have known more than one building burned by keeping ashes, supposed to have no fire in them, in wooden boxes. H. R. SCHETTERLY.

Howell, Mich.

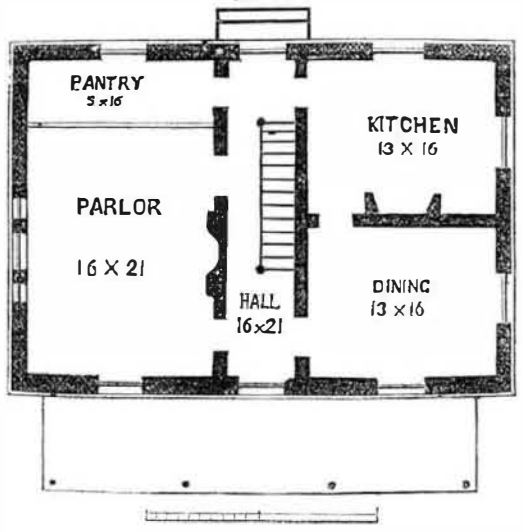
A CHEAP COTTAGE.---Fig. 1.



This cottage is different in design and arrangement from the one presented in our last number. It is adapted for a small family: on the ground floor, as shown by the plan view, are a large parlor, a dining-room of moderate size, which may also be used for a sitting-room, a kitchen, pantry, and hall. On the second floor there is room for four sleeping rooms, and a well-lighted hall through the centre, affording convenient access to each room separately. There is room in the attic for small bed-rooms or for a store-room. The walls are covered with vertical boards and battened; but clapboards may be employed if preferred, or, rather, if the means are at command to do so.

There is much in the painting of a house, according to its style and the materials used, to make it look well. It would not look well to have such a cottage as the above painted white, but if it was clapboarded, white would be the best color for it. At the present time there is a most astounding variety of colored houses, the browns and drabs of all shades predominating. There is much in the choice of shade. A dark brown or drab, in a cottage shaded by foliage, makes a gloomy looking abode. A warm lively color is most suitable for a shaded dwelling, and for one facing the North; houses which front the South, "round which the sunshine plays," may be painted a darker color. There is a shade approaching a cream-colored drab, which would be most suitable for a cottage like the above. The expense of any cottage or building depends entirely upon the "fixings." A cottage like the above can be built for $700, and as many thousands may be expended on it. The ornaments are the things which cost money. A working man should look to snugness (every thing solid and close), neatness, convenience, and comfort before ornament; if both can be afforded, we say they should never be separated. It is quite possible to make a comfortable plain cottage look ornamental, but a mere ornamental cottage is never comfortable. A very plain cottage can, by shrubbery, be made to look beautiful, when independence and tidiness preside over its paternal and maternal duties.

Figure 2.



"My cottage with woodbine o'ergrown,
And the sweet turtle dove cooing round,"

is enough to gladden the heart of any man. As a general thing there is too little attention paid by our working men to the adornment of the door yard, and the natural decorations of shrubs and flowers.

Bohemian Glass.

The celebrated Bohemian glass is blown in small manufactories, containing a single chimney. To each of the factories there are generally eight blowers. The only fuel used is wood. The finishing is performed in the cottages, and this embraces the cutting, polishing, and, indeed, everything but the mixing of the glass and coloring it. The ingredients, long supposed to be different from those employed elsewhere, are asserted to be the same. It is not so much for the material as for the ornamenting, however, that the Bohemian glass is celebrated. This depends upon the taste and skill of the artisan. It is curious how high a degree of merit is attained by these Bohemian workmen. They live in humble cottages, and exercise the utmost frugality, their wages never exceeding six dollars a week, and rarely rising to that point. With no tool but their wheel they will cut the most delicate designs, and without the aid of a pattern. In painting glass they rarely employ more than two brushes, one small and the other a size larger, yet the scrolls, flowers and other traceries come out as fully as a name drawn on a frosty window-pane. It is not an uncommon occurrence for a whole family to be brought up to paint or draw on glass; and thus great skill is frequently acquired, at an age almost incredible. The gold used is from the finest ducats, dissolved in strong acid; the oil with which the colors are mixed is of turpentine.

By the latest news from Europe, Kossuth had arrived in England, where he met with an enthusiastic reception.

LITERARY NOTICES.

GLANCES AT EUROPE—By Horace Greeley. Dewitt & Davenport, publishers, New York.—These Letters originally appeared in the New York Tribune, a newspaper of wide circulation, over which the author has, for several years, presided as the master genius. Through this medium they have been largely read, and by the press and the public variously criticised. They now appear in book form, and, of course, will be again made the subject of criticism. Mr. Greeley is known to the country as a talented man—to question this would be absurd—that he is correct in every thing, or not liable to err, is too much to award human nature—therefore, throughout a large volume of letters, hurriedly written from the force of circumstances, many inaccuracies could doubtless be pointed out by those familiar with the old world. We read these letters with interest, and may recur to them again, not for the purpose of obtaining a history of Europe; had we this object in view, we should look elsewhere. They are the emanations of an original mind, and are free from that stale scum and gossip so characteristic of much newspaper correspondence which finds its way here. When Mr. Greeley trusts his own observation in preference to taking the statements of others, he is more to be relied upon.

THE PRACTICAL COTTON SPINNER AND MANUFACTURER.—This is a work just published by Henry Carey Baird, Philadelphia, embracing the well-known able work of R. Scott, corrected and enlarged with plates and descriptions of some American machines, by Oliver Byrne, C. E. The new plates are Judkin's Heddle Machine, Mason's Mule, and McCulley's Ring Throstle and Live Spindle Frame. It presents rules for the calculations of the speed of shafts, rollers, every spindle and part of all the machines and machinery in a factory, from the main shaft to the last throw of a shuttle. It is a large work and very full; we should say the calculations were elaborate, but embracing more of the British than the American practice: it is got up in good style, and the plates are well executed: it is a great acquisition to our **works on machinery, and is a hand-book** for manufacturers, managers, and machinists. It should meet with an extensive sale.

HAND-BOOK OF THE USEFUL ARTS.—Mr. Geo. P. Putnam, of this city, the esteemed and able publisher, has published a work in six volumes, termed "Putnam's Home Cyclopedia," each of which volumes is complete in itself, and one of which bears the above title; its author is Dr. Antisell. It describes, briefly and well, all the various processes and machines employed in the arts, both chemical and mechanical. It describes the Steam Engine and the Printing Press, and presents some very neat illustrations, and contains nothing but useful and profitable information. To show the scope of the work, we refer to an extract in another column, "Hydraulic Pressure Engines."

TO MECHANICS, Manufacturers, and Inventors.

SEVENTH VOLUME OF THE

SCIENTIFIC AMERICAN.

MESSRS. MUNN & CO.,

AMERICAN & FOREIGN PATENT AGENTS,

And Publishers of the SCIENTIFIC AMERICAN, respectfully announce to the public that the first number of VOLUME SEVEN of this widely circulated and valuable journal was issued on the 20th of September in AN ENTIRE NEW DRESS, printed upon paper of a heavier texture than that used in the preceding volumes.

It is published weekly in FORM FOR BINDING, and affords, at the end of the year, a SPLENDID VOLUME of over FOUR HUNDRED PAGES, with a copious Index, and from FIVE to SIX THOUSAND *ORIGINAL ENGRAVINGS*, together with a vast amount of practical information concerning the progress of INVENTION and DISCOVERY throughout the world. There is no subject of importance to the Mechanic, Inventor, Manufacturer, and general reader, which is not treated in the most able manner—the Editors, Contributors, and Correspondents being men of the highest attainments. It is, in fact, the leading SCIENTIFIC JOURNAL in the country.

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